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DEPARTMENT OF HIGHWAYS

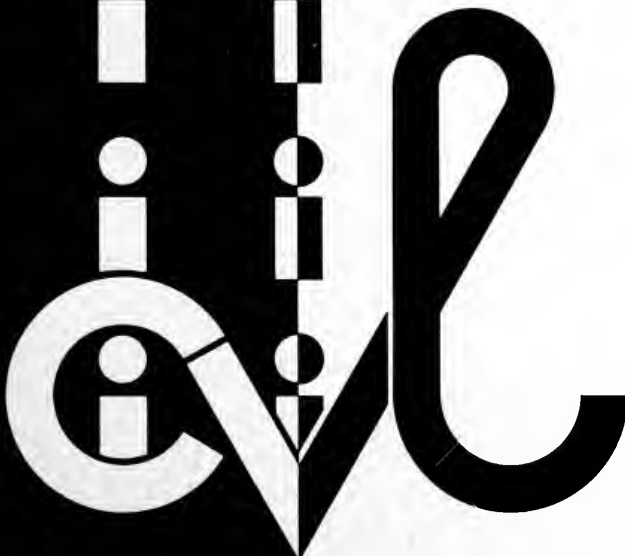
JOINT HIGHWAY RESEARCH PROJECT

Traffic Report

JHRP-89/3

SPEED TRENDS ON INDIANA
RURAL INTERSTATE HIGHWAYS

David L. Cochran



PURDUE UNIVERSITY



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Traffic Report

SPEED TRENDS ON INDIANA RURAL INTERSTATE HIGHWAYS

TO: Harold L. Michael, Director
Joint Highway Research Project

March 1, 1989

FROM: David L. Cochran, Engr. Tech.
Joint Highway Research Project

Project: C-36-10C
File: 8-3-3

Attached is the 1988 report for Speed Trends On Indiana Rural Interstate Highways. This report includes calendar years 1983 through 1988, and is the first speed survey made exclusively of rural interstate data. All data were retrieved from locations that have been exempted from the 55 MPH Speed Compliance Certification Program.

The results of this study show that vehicles on Indiana rural interstate highways, had an average speed of 64.0 mph in 1988. This is only slightly higher than the 1987 average speed of 63.9 mph, but substantially higher than the average speed of 60.3 mph during the 1986 calendar year. In addition, a small sample comparing speed versus vehicle length in 1988 hints that the average speed of cars was 5.7 mph higher than short trucks with a length of 21-45 feet, and 5.0 mph higher than long trucks with a length of 46-99 feet. The final Statewide results also indicate that 85% of all types of vehicles on all rural interstate highways are traveling at, or less than 70.6 mph.

The chart, Figure 2 on page 8, graphically summarizes the speeds Statewide for all locations, and Figure 3 illustrates the percentages greater than speeds. Figure 4 compares combined speeds of the three lengths of vehicles monitored at two locations versus Statewide mean speed and corrected percent greater than 65 mph. Appendix A contains summarized statistics for each individual monitoring station from 1983 through 1988. The Tables and Figures in Appendix B compare all stations, while the Tables and Figures in Appendix C summarize the speed by length data at two stations. Calculations for final Statewide statistics are located in Appendix D.

Copies of this report will be sent to the Indiana Department of Highways. Copies of this report are requested for release to the Indiana State Police and other highway safety agencies, which is normal procedure for these reports.

Respectfully submitted,



David L. Cochran
Traffic Research

Traffic Research Report
SPEED TRENDS ON INDIANA RURAL INTERSTATE HIGHWAYS

by

David L. Cochran
Traffic Research

Joint Highway Research Project

Project No.: C-36-100

File No.: 8-3-3

Prepared as part of the continuing collection
of planning data as included in the

Annual HPR Part I Work Program

of the

Indiana Department Of Highways

in cooperation with the

Federal Highway Administration

Purdue University
West Lafayette, Indiana 47907

March 1, 1989

SPEED TRENDS ON INDIANA RURAL INTERSTATE HIGHWAYS

Scope Of Study

This report is a comparison and analysis of speed monitoring sessions made exclusively on Rural Interstate highways in Indiana for calendar years 1983 through 1988. Final Statewide results are listed in Table 2 and graphically illustrated in Figures 2 and 3.

The studies were conducted by the Joint Highway Research Project (JHRP) at Purdue University. Federal Highway Planning and Research (HPR) funds from Part I (Planning) were used in part for the expenses of this study. Personnel of JHRP collected the speed data, analyzed the information and reported these results.

Speeds were measured at historical Rural Interstate locations which were exempted from the 55 MPH Certification Program on June 1, 1987. These data are used as a comparison of speed data retrieved from the same locations during prior years. All locations were originally selected by methods determined from the FHWA "Speed Monitoring Program Procedural Manual" (SMPPM). Data from two new locations are also included in this report. These sites were required additions to the 55 MPH Certification Program for the 1988 Speed Year survey. All Rural Interstate highways in Indiana are now exempt from that program. The locations monitored are listed in Table 1 and shown in Figure 1.

There are presently, nearly 870 miles of rural interstate highways in Indiana. Of this total, only 13 miles remain posted at 55 mph for various reasons. The posted speed limit at all monitored locations is 65 mph, except for RIC-11. This site is currently posted at 55 mph due to the highway "crown" contour. Since RIC-11 is located well out of the local urbanized area, and is upstream of many miles of highway posted at 65 mph, it is desirable to retain this location in the survey.

The speed limit on Indiana rural interstate highways was posted at 65 mph for all vehicles from June 1, 1987 to approximately May 1, 1988. However, a maximum speed limit of 55 mph for trucks with a gross weight of 13 tons was legislated in Indiana on April 1, 1988. Therefore, the direct comparative value of 65 mph speed data collected after that date may be affected somewhat by this "dual" speed limit.

Introduction

The Joint Highway Research Project (JHRP) has conducted annual speed studies (currently entitled "Traffic Speed Report") for the Indiana Department of Highways (IDOH) since 1955. In addition, JHRP provides statistical speed data reporting under the research study title of "Speed Trends on Indiana Highways" for use in determining Annual Certification of Speed Limit Enforcement for the 55 MPH Speed Compliance Program.

This report addresses some of the changes that have occurred due to passage of the Federal-Aid Highway Act of 1987. Specifically, the change in speed limit posting from 55 mph to 65 mph on Rural Interstate highways in Indiana, in accordance with Section 174 of the Surface Transportation and Uniform Relocation Act of 1987.

55 MPH History

In 1973, Congress established a national maximum speed limit of 55 mph as a temporary oil-energy conservation measure. Congress made the national maximum speed limit permanent in 1974. The Federal-Aid Amendments of 1974 made annual state enforcement certification a prerequisite for approval of Federal-aid highway projects. Annual statistics from JHRP speed monitoring programs are a part of this annual certification.

The annual speed certification monitoring program followed a sequence of Federal procedural manuals. The first, "Procedural Guide for Speed Monitoring," issued in September, 1973, provided for monitoring sessions during normal workdays on level, tangent highway sections under "free-flow" conditions. The Federal government felt that public compliance with the national maximum speed limit worsened, and Congress passed the Highway Safety Act of 1978. This Act provided means for withholding Federal-Aid highway funds, or awarding incentive grants based on favorable annual speed compliance data. The incentive grant program was later discontinued.

The decision for penalties in withholding Federal-Aid highway funds was based on the fraction of all vehicles exceeding 55 mph on roads and streets posted at 55 mph (rather than "free-flow" vehicles on state highways, as previously). In response, the FHWA issued "Interim Speed Monitoring Procedures", which changed the methods for the collecting and reporting of speed information for Speed Years 1979 and 1980. The final "Speed Monitoring Program Procedural Manual" (SMPPM) was issued in May of 1980.

The SMPPM required several changes in the speed monitoring program for Indiana, and a new set of 35 speed monitoring locations had to be chosen by a random selection process. Since 1980, some locations have been moved, either temporarily or permanently. The historical speed monitoring locations in Indiana could no longer be included in the compliance program, and annual results of the historical program (SPOTSPEED) are now reported separately.

65 MPH HISTORY

On April 2, 1987, the Federal-aid Highway Act of 1987 (Act) was enacted. The Federal Highway Traffic Safety Administration (NHTSA) amended section 174, 23 U.S.C. 154 as mandated by the Act. This amendment gave "the States the authority to increase, without the loss of Federal-aid funds, the maximum speed limit to no more than 65 mph..... on Interstate Systems located outside an urbanized area of 50,000 (population) or more".

The amendment states that "States may raise speed limits on eligible highway sections immediately without waiting for the end of the fiscal year". For Indiana, the effective date for the change from 55 mph to 65 mph on eligible Rural Interstate sections was June 1, 1987. Also, "Any State choosing to increase the speed limit from 55 mph.... will have to adjust the speed sampling and analysis plan in effect for the fiscal year in which the limit is raised".

An FHWA Memorandum was distributed which advised States that elected to increase the speed limit on eligible sections of Rural Interstate, that "VMT represented by the mileage on which the speed limit is raised above 55 mph will be excluded from the calculation of FY 1987 55 mph speed limit compliance statistics". As of June 1, 1987, all historical 55 mph Rural Interstate locations in Indiana were exempted from the 55 MPH Certification Program.

However, initial revised VMT weighting factors in September 1987, for use during the 1988 Speed Year, mandated the selection of two new rural interstate locations in areas still posted at 55 mph. The two new locations were monitored until September 1988, but a final revision of the VMT weighting factors exempted all rural interstate data from the 1988 Speed Year Annual Report, and from further inclusion in the 55 MPH Compliance Certification Program.

Sample Size

The historical rural interstate speed monitoring sites were comprised of four (4) control, and six (6) standard locations. The two (2) new control locations required for the 1988 Certification Program have been added to the rural interstate speed trends study. Control locations were monitored once each Speed Quarter, while standard locations were monitored once each Speed Year. All sites are now monitored only once per year, and the original locations and directions have been retained. Currently, 12 locations are being monitored for reporting data in association with "Speed Trends On Indiana Rural Interstate Highways".

Equipment and Procedures

The equipment used for monitoring speed consisted of a Streeter-Richardson model 141A/4 portable traffic recorder and model 240 reader, or a Streeter-Richardson model 241 classifier. Sensors consisted of permanent or temporary inductive loops or tape switches. Calibrations at installations were performed using a Kustom Signals K-band or X-band radar unit. This method, procedures used, and accuracy results have been approved for Indiana by the FHWA for use in the 55 MPH Certification Program.

Continuous data periods of 24 hours were extracted from a single monitoring session, generally lasting 36 to 72 hours. The data period extracted was pre-selected by calendar date or day for comparison with data taken during a similar period at the same location. Occasional problems relative to weather, equipment failure or schedule delays required alternate periods.

TABLE 1

SAMPLING SEGMENTS
65 MPH RURAL INTERSTATE

RIS-01	I-69, Steuben County, 5 miles south of I-80 to I-80, <u>Northbound</u> .
RIS-02	I-69, Grant County, U.S. 35 to S.R. 18, <u>Southbound</u> .
RIS-03	I-70, Hancock County, S.R. 9 to S.R. 109, <u>Westbound</u> .
RIC-04	I-80, Porter County, S.R. 49 to LaPorte County line, <u>Westbound</u> .
RIS-05	I-74, Boone County, Montgomery County line to S.R. 75, <u>Westbound</u> .
RIC-06	I-64, Dubois County, Spencer County line to Hawk Run Creek, <u>Eastbound</u> .
RIS-07	I-70, Henry County, S.R. 109 to Bridge 5116, <u>Westbound</u> .
RIC-08	I-69, Huntington County, Wabash River to Flat Creek, <u>Northbound</u> .
RIC-09	I-80, Porter County, Portage City Limits to S.R. 49, <u>Westbound</u> .
RIS-10	I-65, Tippecanoe County, Bridge 5555 to Bridge 5548, <u>Southbound</u> .
RIC-11	I-65, Lake County, 2.5 miles north to 1.4 miles south of U.S. 231, <u>Southbound</u> .
RIC-12	I-69, Madison County, 1.1 miles north to 5.5 miles north of Scatterfield Road, (S.R. 9), <u>Southbound</u> .



FIGURE 1

Most locations were monitored during a date period as closely related to the previous session as practicable, and historical data were selected to give a reasonable balance over the year. Some adjustments in dates of monitoring speeds at certain locations were necessary to take advantage of permanent loop locations during cold weather periods, when placement of temporary sensors is difficult or impossible.

Results of Analysis

The results from this initial study show that the Statewide average speed of all vehicles on the rural interstate highways has increased as expected, but not as high as anticipated. The average speed of all vehicles was up slightly in 1988 by 0.1 mph at 64.0 mph, when compared to an average speed of 63.9 mph in 1987 (Figure 2). The average speed in 1988 was 3.7 mph higher than the average speed of 60.3 mph in 1986. During the study period of this report, the highest average speed of 64.3 mph occurred during 1984 (Figure 2).

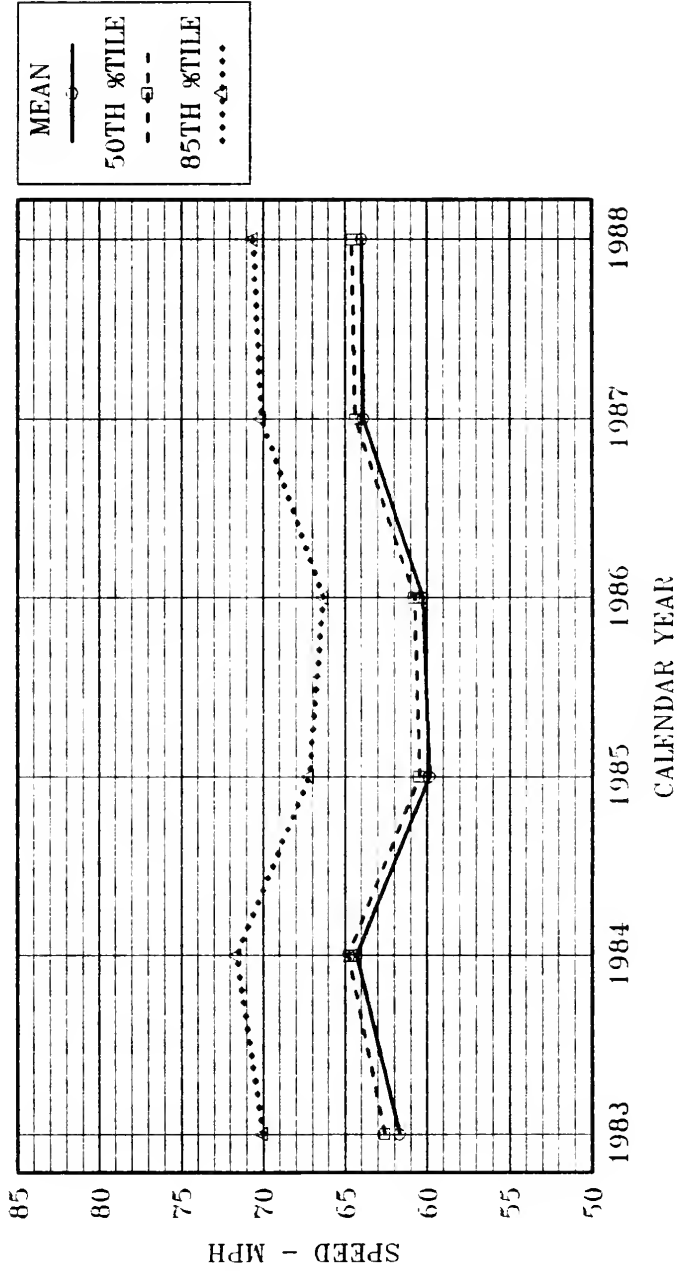
The percent of vehicles exceeding 65 mph was also up in 1988 over previous years (Figure 3), but again, was not as high as posted in 1984. The number of motorists exceeding 65 mph increased by 3.0 percent in 1988 from 1987, but increased by 24.9 percent from 1986. Alternately, the number of vehicles exceeding 55 mph decreased in 1988 by 1.8 percent as compared to 1987 (Figure 3). This phenomena may be due, in part, to reducing the speed limit from 65 mph to 55 mph for trucks during 1988.

TABLE 2

STATEWIDE SPEEDS AND PERCENT GREATER THAN SPEED

		SPEED			RAW PERCENT GREATER THAN				
YEAR	TOTAL	MEAN	50TH	85TH	55	60	65	70	75
1983	61617	61.7	62.6	70.0	84.4	59.1	31.1	11.1	2.6
1984	67319	64.3	64.8	71.6	91.6	73.0	43.1	16.4	5.2
1985	72794	59.9	60.5	67.2	82.1	46.8	17.8	5.8	1.3
1986	77204	60.3	60.8	66.3	84.0	48.2	15.7	4.0	0.8
1987	77309	63.9	64.4	70.1	95.3	76.2	37.6	9.9	2.0
1988	112560	64.0	64.6	70.6	93.5	74.6	40.6	12.7	2.9

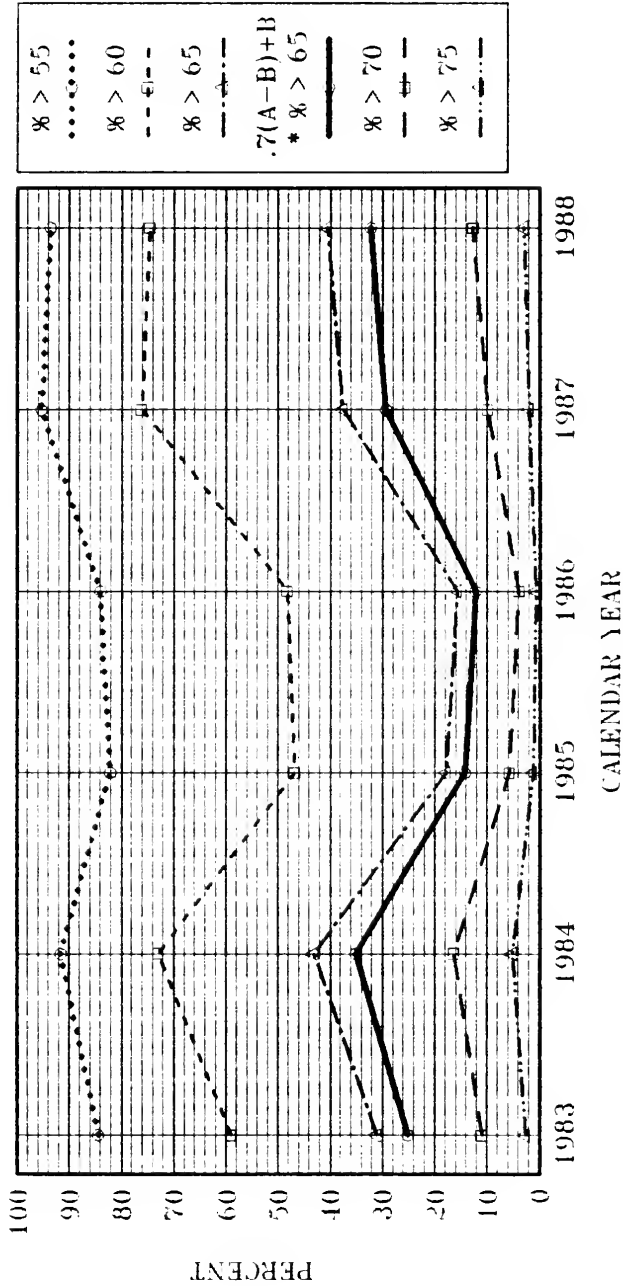
RURAL INTERSTATE SPEED TRENDS
FOR INDIANA



Location: STATEWIDE

FIGURE 2

RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: STATEWIDE
* Adjusted For
Speedometer Error

FIGURE 3

Due to the passage of the reduced speed limit law for trucks with a gross weight of 13,000 pounds or more, interest has grown for actual results of overall compliance with the lower limit. The "dual" speed limit will effect direct comparison of historical statistics somewhat, but overall results should not be drastically different.

In order to determine different vehicular compliance with the 65 mph and 55 mph speed limits on Indiana rural interstate highways, two surveys were made at two locations to examine speed versus vehicle length. The sites selected for this sample were RIS-03 and RIC-06. These locations were used because they have permanent loop installations, are geographically different, and appear to have different historic speed trends. Three vehicle lengths were arbitrarily selected for use in the survey (Table 3), and all future speed monitoring sessions will be accomplished by the same method.

These speed by length data were not used as part of the overall Statewide statistics, but are reported separately for comparison to the Statewide summary. The results of this small sample show that the three-day combined average speed at RIS-03 and RIC-06 for all combined trucks was 61.5 mph (Figure 1). All cars for the same time period had an average speed of 66.6 mph. These results indicate that the average speed of all trucks were 5.1 mph lower than the average speed of cars. However, long trucks had a higher average speed than short trucks by 0.7 mph (Figure 4).

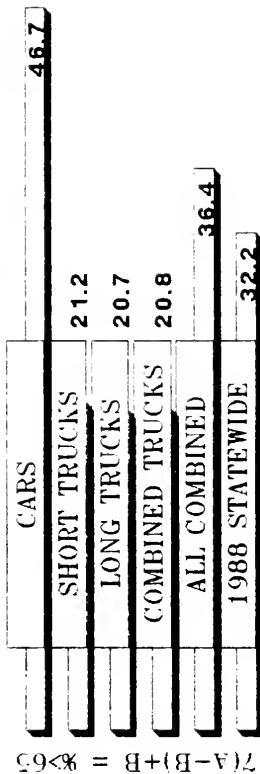
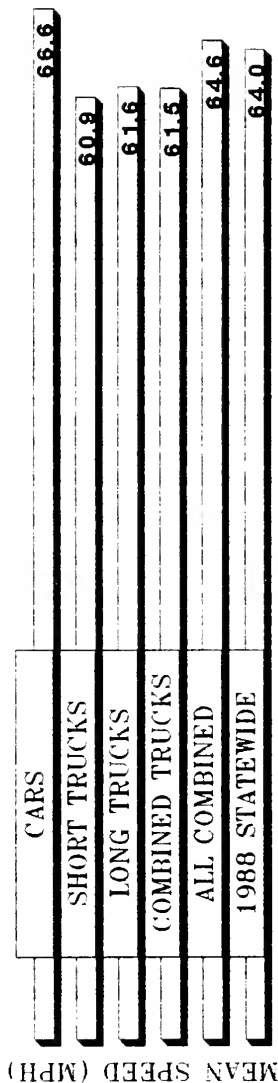
When all trucks are combined, 77.6 percent were exceeding 55 mph, and 21.9 percent were exceeding 65 mph (Table 4). There were 94.3 percent of the cars exceeding 55 mph, and 55.1 percent of the cars exceeding 65 mph for the same time period. In addition, 78.7 percent of the long trucks were exceeding 55 mph, while 71.5 percent of the short trucks were exceeding 55 mph (Table 4).

TABLE 3

VEHICLE TYPE Vs. LENGTH

VEHICLE TYPE	LENGTH	FHWA VEHICLE CLASS
CARS	0-20 Feet	1 thru 3
SHORT TRUCKS	21-45 Feet	4 thru #8 #3 - Axle
LONG TRUCKS	46-99 Feet	#8 thru 13 #4 - Axle

RURAL INTERSTATE SPEED TRENDS FOR INDIANA



COMBINED RIS-03 & RIC-06 Vs. STATEWIDE 1988

Speed vs Length - ALL COMBINED
Short Trucks = 21 - 45 Feet
Long Trucks = 46 - 99 Feet

FIGURE 4

TABLE 4

RIS-03 AND RIC-06 COMBINED BY VEHICLE LENGTH
For September and December 1988

VEHICLE TYPE	TOTAL	SPEED			RAW PERCENT GREATER THAN				
		MEAN	50TH	85TH	55	60	65	70	75
Cars (0-20 Feet)	28880	66.6	66.9	74.9	94.3	82.0	55.1	26.0	11.7
Short Trucks (21-45 Feet)	2898	60.9	60.7	69.7	71.5	48.8	25.4	11.5	6.5
Long Trucks (46-99 Feet)	15748	61.6	61.0	69.6	78.7	50.2	24.8	11.2	6.1
All Trucks	18646	61.5	61.0	69.6	77.6	49.9	24.9	11.2	6.1
All Vehicles	15748	64.6	64.7	73.4	87.7	69.4	43.3	20.2	9.5

Conclusions

Statewide speed trends on Indiana rural interstate highways were up slightly in 1988 from 1987 (Table 2). The average speed in 1988 was still below the peak Statewide average speed noticed during 1984 (Figure 2). The 55 mph speed limit imposed on trucks on the rural interstate highways in Indiana has kept the overall Statewide average speed in 1988 to a relatively moderate level.

For the 55 MPH Speed Compliance Certification Program, the FHWA and NHTSA gives a procedure for adjusting the percentage of vehicles traveling over 55 mph to account for speedometer variability and sampling error. The speedometer adjustment for the percentage over 65 mph can be made using a similar procedure, and is calculated as follows:

If A = percent exceeding 65 mph

and

B = percent exceeding 70 mph

Then $C = .7(A - B) + B$ (adjusted percent of vehicles exceeding 65 mph)

In Indiana for 1988:

A = 40.6 and B = 12.7 (Table 2); then,

$C = .7(40.6 - 12.7) + 12.7$; C = 32.2% exceeding 65 mph

The SMPPM procedure allows an additional adjustment by using the lower limit of the confidence interval for the percentage exceeding 65 mph. This lower limit is obtained by subtracting 1.78 times the sample standard deviation from the adjusted percent exceeding 65 mph. This procedure established a target for sampling accuracy of 2.0% at a 95% one-sided confidence level. Following the prescribed method of calculation, the Statewide standard error was 0.96%. The SMPPM assumes that the standard error has a Student's t distribution with degrees of freedom equal to the number of speed monitoring locations. Since 12 locations are monitored, the 95th percentile of the Student's t distribution with 12 degrees of freedom is 1.78. Therefore, the accuracy obtained was:

$D = 1.78 \times 0.96$; therefore D = 1.71%

and

$F(\text{inal}) = C - D$; so, $F = 32.2 - 1.71$;

therefore,

F = 30.5% exceeding 65 mph.

The final Statewide estimated percentage of vehicles exceeding 65 mph in Indiana, adjusted for speedometer error and sampling error was 30.5%. The Statewide average speed was 64.0 mph in 1988, and 85% of all vehicles on Indiana rural interstate highways were traveling at, or less than 70.6 mph.

Appendix A

Rural Interstate Speed Data

by

Speed Monitoring Location

Speed Data Tables (RIS-01 thru RIC-12)

Speed Figures (A-1A thru A-10A)

Percent Figures (A-1B thru A-10B)

TABLE A-1

SPEED DATA FOR RIS-01

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>70	>75	>75
RIS-01 WED	20 Jun 83	5742	57.6	58.6	61.1	5589	5254	4127	71.9	1677	29.2	375	6.5	106	1.8
RIS-01 FRI	14 Sep 84	8979	60.5	60.8	65.6	8944	8832	7984	88.9	4376	48.7	1093	12.2	179	2.0
RIS-01 WED	4 Sep 85	5133	57.7	58.6	64.3	5000	4714	3692	71.9	1529	29.8	379	7.4	84	1.6
RIS-01 SAT	6 Sep 86	5692	60.6	61.0	65.8	5668	5555	4949	86.9	2832	49.8	782	13.7	211	3.7
RIS-01 TUE	22 Sep 87	7178	66.4	66.8	71.9	7173	7160	7079	98.6	6513	91.2	4019	56.0	1249	17.4
RIS-01 THU	22 Sep 88	6304	66.0	66.0	73.9	6280	6211	5881	93.3	4930	78.2	3168	50.3	1421	22.5
														608	9.6

TABLE A-2

SPEED DATA FOR RIS-02

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>70	>75	>75
RIS-02 MON	13 Jun 83	6305	58.8	60.0	65.4	6090	5937	5193	82.4	2642	41.9	721	11.4	190	3.0
RIS-02 FRI	18 May 84	6825	60.7	61.2	66.2	6784	6681	5916	86.7	3529	51.7	1049	15.4	230	3.4
RIS-02 THU	15 Nov 84	5467	59.3	60.0	65.3	5365	5195	4504	82.4	2294	42.0	590	10.8	151	2.8
RIS-02 THU	10 Jun 86	7571	58.8	59.7	65.0	7350	7168	6236	82.4	2952	39.0	678	9.0	134	1.8
RIS-02 WED	3 Jun 87	7829	62.4	63.1	68.0	7806	7734	7340	93.8	5396	68.9	1800	23.0	272	3.5
RIS-02 FRI	3 Jun 88	10076	64.5	65.1	70.4	10063	10006	9616	95.4	7918	78.6	4405	43.7	1118	11.1
														201	2.0

TABLE A-3

SPEED DATA FOR RIS-03

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>70	>75	>75
RIS-03 WED	11 Jan 83	8780	53.8	55.3	60.6	8005	6797	4008	45.6	1055	12.0	176	2.0	43	0.5
RIS-03 WED	15 Feb 84	7808	60.4	60.9	65.7	7791	7691	6696	85.8	3821	48.9	1006	12.9	169	2.2
RIS-03 MON	21 Nov 85	7921	57.7	58.5	64.1	7739	7341	5658	71.4	2216	28.0	562	7.1	147	1.9
RIS-03 WED	26 Feb 86	8250	57.1	58.0	64.1	7953	7266	5293	64.2	2317	28.1	591	7.2	111	1.3
RIS-03 THU	22 Jan 87	9303	62.1	62.6	67.8	9282	9242	8764	94.2	5901	63.4	1932	20.8	431	4.6
RIS-03 FRI	22 Jan 88	11238	60.9	61.5	67.8	11164	10889	9409	83.7	6001	53.4	2320	20.6	540	4.8
														69	0.6

TABLE A-4

SPEED DATA FOR RIC-04

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>70	>75	>75				
RIC-04 FRI	24 Feb 84	3998	60.7	61.5	67.1	3942	3892	3412	86.1	2131	53.3	720	18.0	157	3.9	28	0.7
RIC-04 MON	10 Dec 84	3471	53.0	54.0	60.8	3041	2323	1355	39.0	489	14.1	141	4.1	35	1.0	7	0.2
RIC-04 MON	11 Nov 85	6958	56.6	59.2	65.2	6406	6039	5068	72.8	2557	36.7	739	10.6	204	2.9	31	0.4
RIC-04 TUE	25 Nov 86	7628	61.2	61.6	67.4	7567	7506	6847	89.8	4165	54.6	1439	18.9	388	5.1	86	1.1
RIC-04 SUN	22 Nov 87	6490	65.0	65.8	71.3	6452	6419	6204	95.6	5177	79.8	3150	48.5	1025	15.8	202	3.1
RIC-04 WED	7 Dec 88	6370	61.4	61.4	69.4	6306	6199	5336	83.8	3330	52.3	1691	26.5	620	9.7	136	2.1

TABLE A-5

SPEED DATA FOR RIS-05

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>70	>75	>75				
RIS-05 FRI	18 Nov 83	3530	62.3	62.7	68.2	3527	3512	3296	93.4	2245	63.6	798	22.6	200	5.7	38	1.1
RIS-05 SAT	28 Sep 85	3867	59.7	59.8	65.5	3839	3774	3234	83.6	1509	39.0	475	12.3	147	3.8	32	0.8
RIS-05 MON	28 Oct 85	4407	60.2	60.3	65.9	4367	4247	3712	84.2	1973	41.8	640	14.5	201	4.6	45	1.0
RIS-05 TUE	11 Nov 86	3368	62.6	63.5	70.0	3295	3268	3099	92.0	2293	68.1	1084	32.2	363	10.8	103	3.1
RIS-05 WED	11 Nov 87	3975	63.6	65.8	70.9	3796	3759	3659	92.1	3203	80.6	1949	49.0	564	14.2	141	3.5
RIS-05 TUE	2 Aug 88	4473	63.6	64.0	69.7	4459	4437	4253	95.1	3371	75.4	1507	33.7	377	8.4	62	1.4

TABLE A-6

SPEED DATA FOR RIC-06

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>70	>75	>75				
RIC-06 TUE	4 Jan 83	2213	61.3	61.7	67.7	2207	2161	1937	87.5	1211	54.7	443	20.0	116	5.2	20	0.9
RIC-06 TUE	27 Mar 84	2673	60.8	61.6	67.6	2644	2574	2254	84.3	1448	54.2	531	19.9	120	4.5	34	1.3
RIC-06 SAT	19 Feb 85	2409	59.2	59.8	67.5	2349	2141	1678	69.7	1060	41.0	459	19.1	133	5.5	7	0.3
RIC-06 TUE	4 Feb 86	2608	59.5	59.8	65.6	2589	2525	2008	77.0	1090	41.8	333	12.8	75	2.9	16	0.6
RIC-06 WED	14 Jan 87	2983	63.0	63.4	69.4	2978	2952	2769	92.8	2033	68.2	887	29.7	246	8.2	66	2.2
RIC-06 FRI	15 Jan 88	3493	66.3	67.1	73.2	3460	3445	3390	97.1	3069	87.9	2011	57.6	782	22.4	198	5.7

TABLE A-7

SPEED DATA FOR RIS-07

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
RIS-07 FRI	29 Oct 82	9059	60.1	61.2	66.2	8826	8708	7975	88.0	4630	51.1	1408	15.5	330	3.6	57	0.6
RIS-07 THU	27 Oct 83	9252	61.7	62.3	68.0	9213	9128	8354	90.3	5515	59.6	2004	21.7	478	5.2	86	0.9
RIS-07 WED	5 Jun 85	10758	58.7	59.9	65.1	10412	10135	8738	81.2	4420	41.1	1038	9.6	165	1.5	31	0.3
RIS-07 SAT	27 Sep 86	10941	59.8	60.1	65.5	10868	10622	9153	83.7	4676	42.7	1269	11.6	280	2.6	44	0.4
RIS-07 MON	28 Sep 87	11398	64.1	64.5	69.9	11378	11346	10997	96.5	9018	79.1	4247	37.3	953	8.4	126	1.1
RIS-07 WED	28 Sep 88	12079	62.1	64.3	70.8	11371	11170	10618	87.9	8712	72.1	4712	39.0	1683	13.9	436	3.6

TABLE A-8

SPEED DATA FOR RIC-08

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
RIC-08 FRI	20 May 83	6613	64.3	64.6	70.6	6591	6569	6390	96.6	5071	76.7	2592	39.2	866	13.1	172	2.6
RIC-08 TUE	10 Apr 84	5219	63.4	63.8	69.6	5201	5171	4919	94.3	3773	72.3	1685	32.3	421	8.1	95	1.8
RIC-08 TUE	21 May 85	5958	64.9	64.9	71.6	5951	5936	5762	96.7	4671	78.4	2515	42.2	980	16.4	230	3.9
RIC-08 FRI	13 Jun 86	9433	60.5	61.1	67.4	9208	8897	7968	84.5	4805	50.9	1768	18.7	516	5.5	102	1.1
RIC-08 SAT	16 May 87	6487	61.8	62.0	68.1	6479	6442	5864	90.4	3711	57.2	1398	21.6	385	5.9	94	1.4
RIC-08 SUN	15 May 88	9257	67.3	67.9	73.6	9249	9230	9082	98.1	8343	90.1	6033	65.2	2269	24.5	574	6.2

TABLE A-9

SPEED DATA FOR RIC-09

LOCATION DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
RIS-09 THU	31 Aug 83	9303	62.2	62.7	68.7	9255	9161	8388	90.2	5859	63.0	2367	25.4	585	6.3	113	1.2
RIS-09 SUN	8 Jul 84	9314	62.1	62.4	69.2	9243	9126	8228	88.3	5533	59.4	2387	25.6	830	8.9	273	2.9
RIS-09 SAT	7 Sep 85	7407	62.6	62.8	69.4	7372	7291	6864	92.7	4649	62.8	2037	27.5	694	9.4	136	1.8
RIS-09 FRI	5 Sep 86	9181	63.1	63.4	69.3	9155	9111	8742	95.2	6375	69.4	2641	28.8	740	9.1	138	1.5
RIS-09 WED	16 Sep 87	9688	65.0	65.5	70.7	9660	9624	9402	97.0	8102	83.6	4515	46.6	1258	13.0	213	2.2
RIS-09 THU	15 Sep 88	10715	64.5	64.9	70.4	10680	10645	10403	97.1	8576	80.0	4440	41.4	1222	11.4	171	1.6

SPEED DATA FOR RIS-10

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%55	>60	%60	>65	%65	>70	%70	>75	%75
RIS-10	MON	24 Jan 83	6074	60.8	61.5	67.9	6004	5826	4994	82.2	3219	53.0	1276	21.0	328	5.4	119	2.0
RIS-10	WED	27 Jun 84	10112	60.2	60.3	69.9	9904	9264	7374	72.9	4702	46.5	2452	24.2	1263	12.5	69	0.7
RIS-10	FRI	11 Oct 85	16376	60.9	61.5	69.1	15896	15613	14108	86.2	8698	53.1	4028	24.6	1487	9.1	392	2.4
RIS-10	SAT	22 Nov 86	12532	60.2	60.5	65.6	12497	12280	10590	84.5	5745	45.8	1533	12.2	302	2.4	74	0.6
RIS-10	SAT	21 Nov 87	11978	64.7	65.1	70.3	11970	11925	11582	96.7	9794	81.8	5153	43.0	1257	10.5	246	2.1
RIS-10	SAT	16 Jul 88	14003	64.9	65.2	70.7	13997	13970	13616	97.2	11114	79.4	6227	44.5	1860	13.3	393	2.8

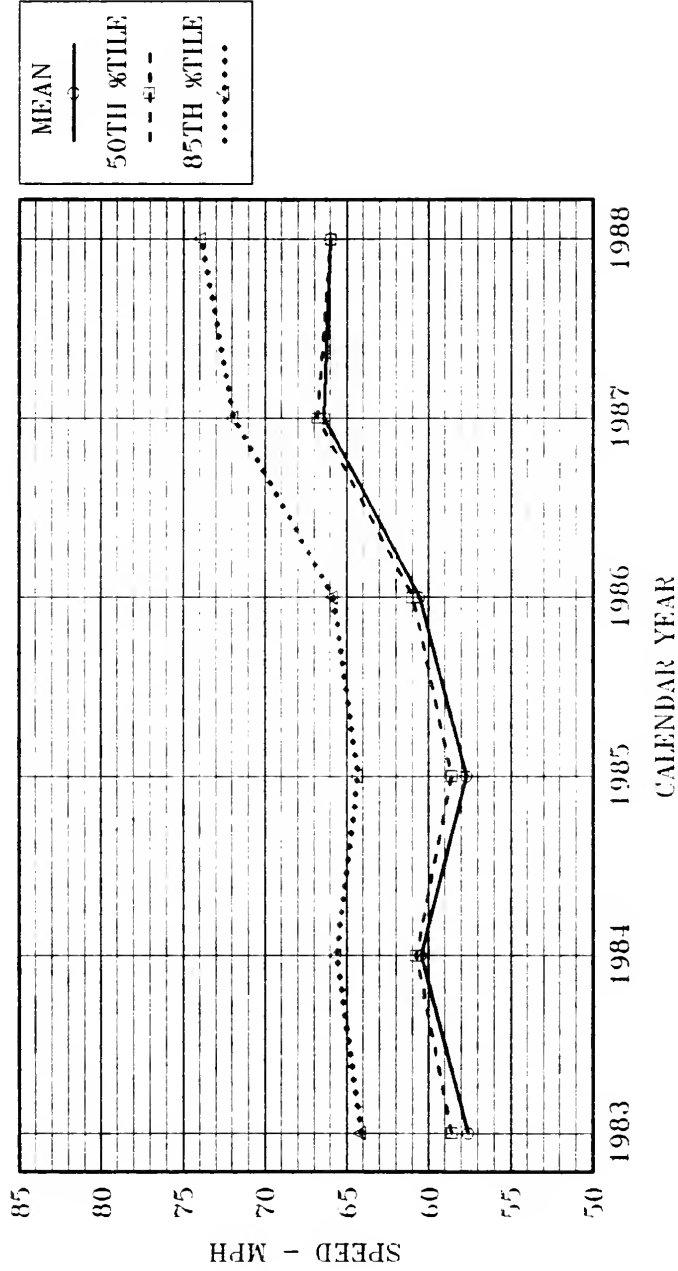
SPEED DATA FOR RIC-11

[illegible]

SPEED DATA FOR RIC-12

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>70	>75	>75				
RIC-12	SAT	3 Jun 88	12175	65.0	65.6	70.7	12151	12073	11697	96.1	9998	82.1	5733	47.1	1594	13.1	282	2.3

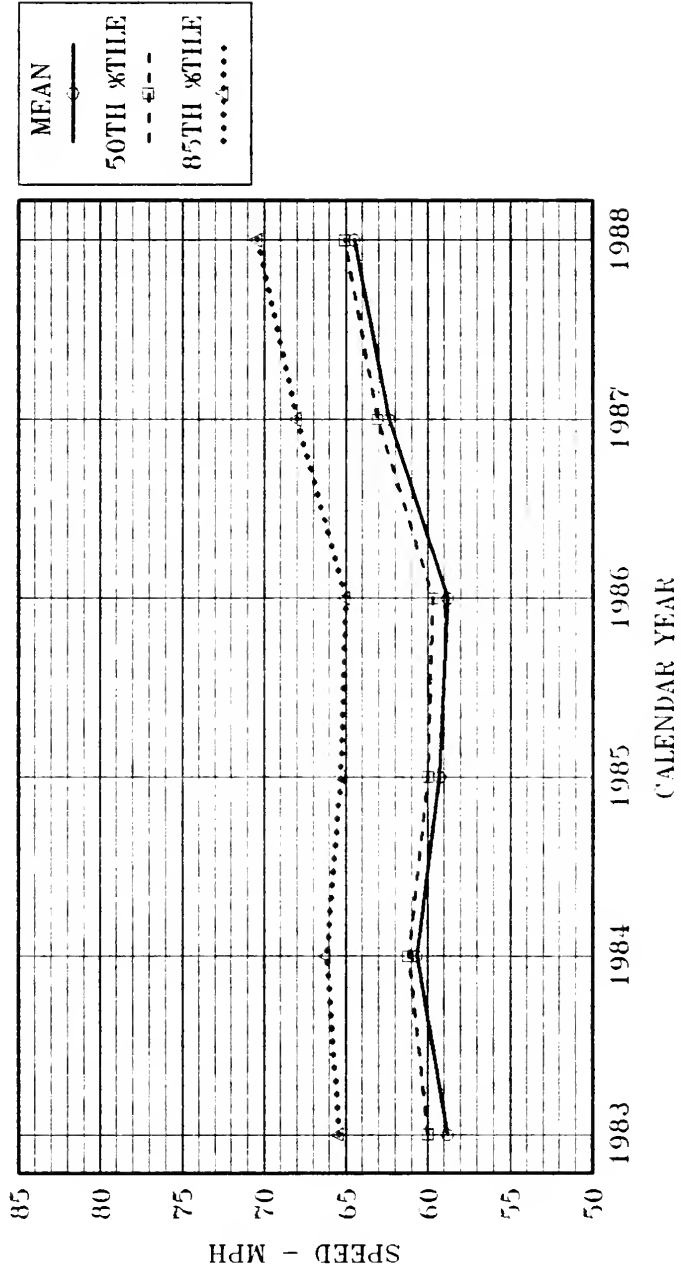
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-01

FIGURE A-1A

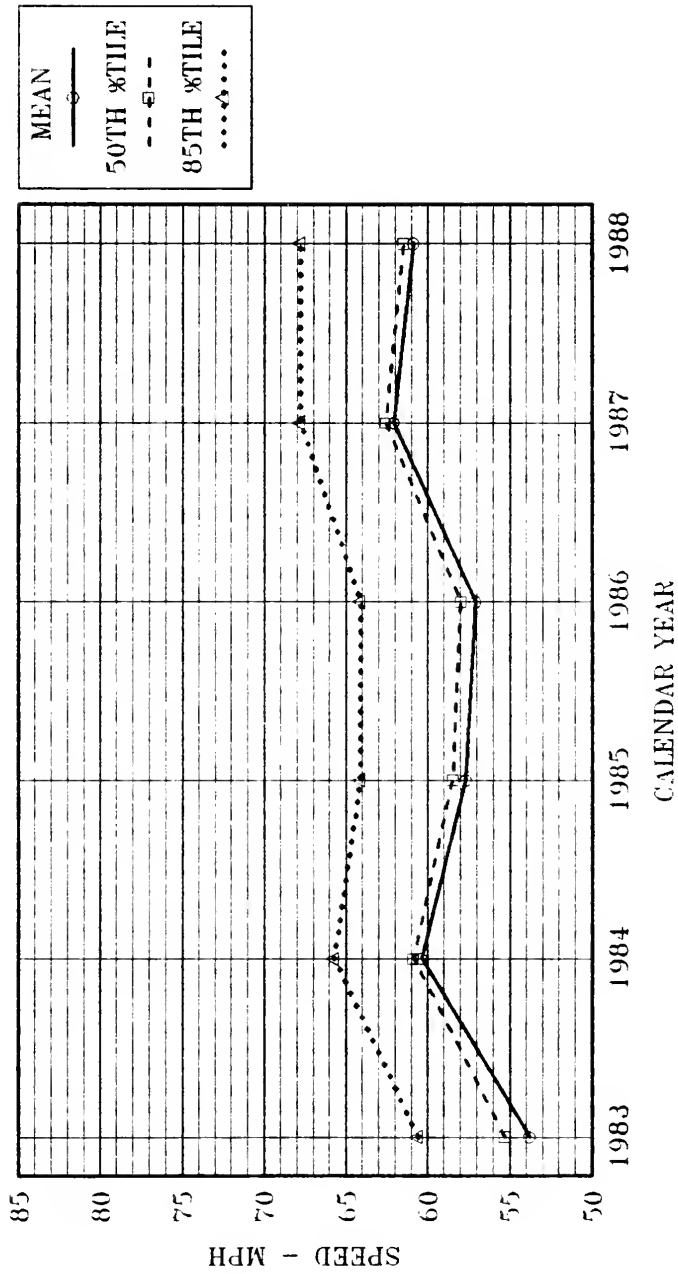
RURAL INTERSTATE SPEED TRENDS
FOR INDIANA



Location: RIS-02

FIGURE A-2A

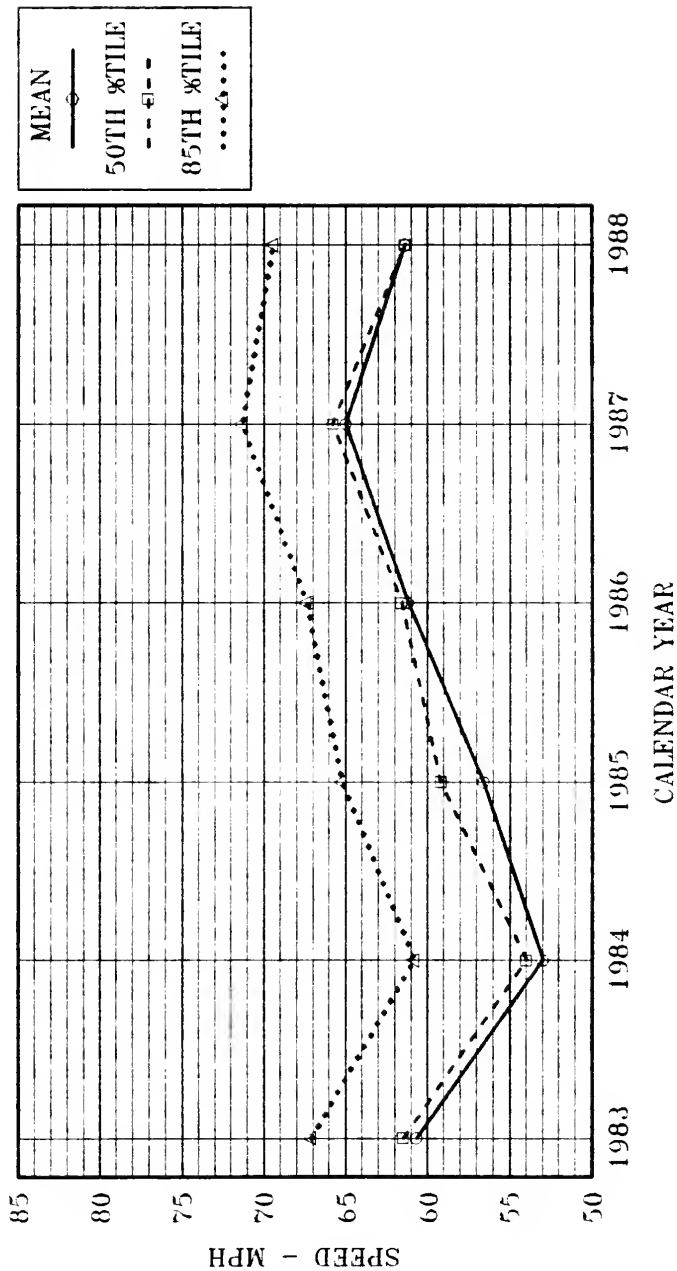
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIs-03

FIGURE A-3A

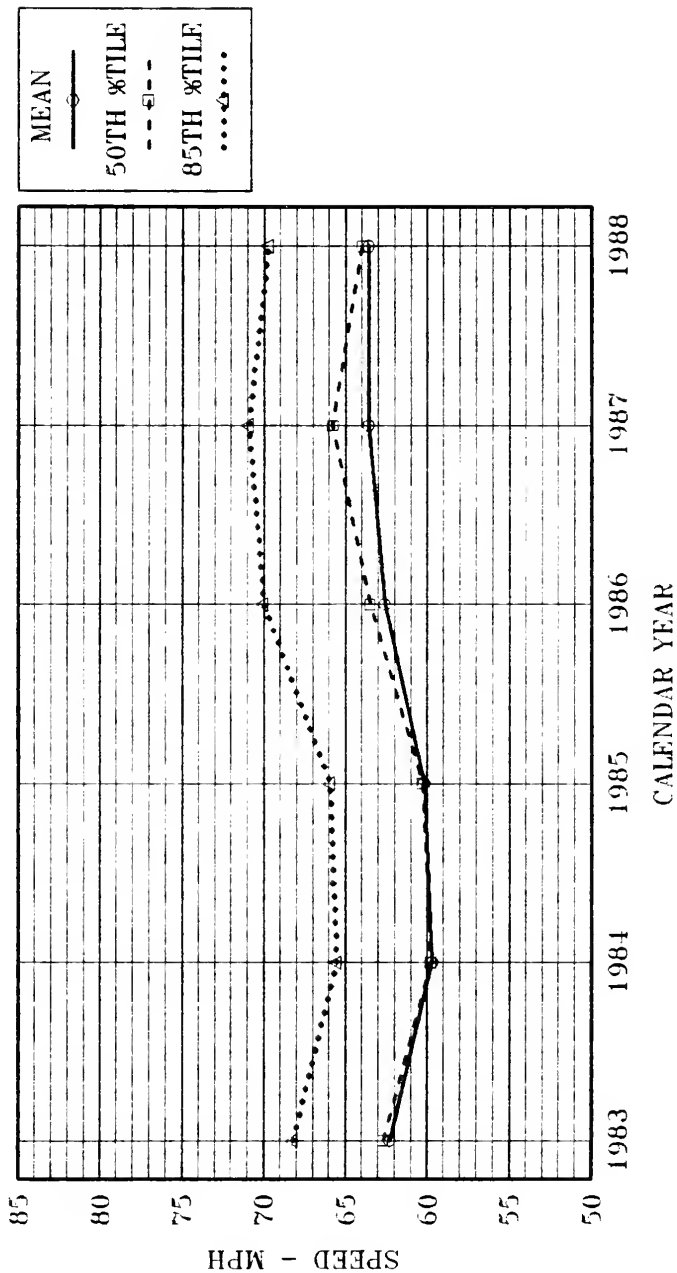
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-04

FIGURE A-4A

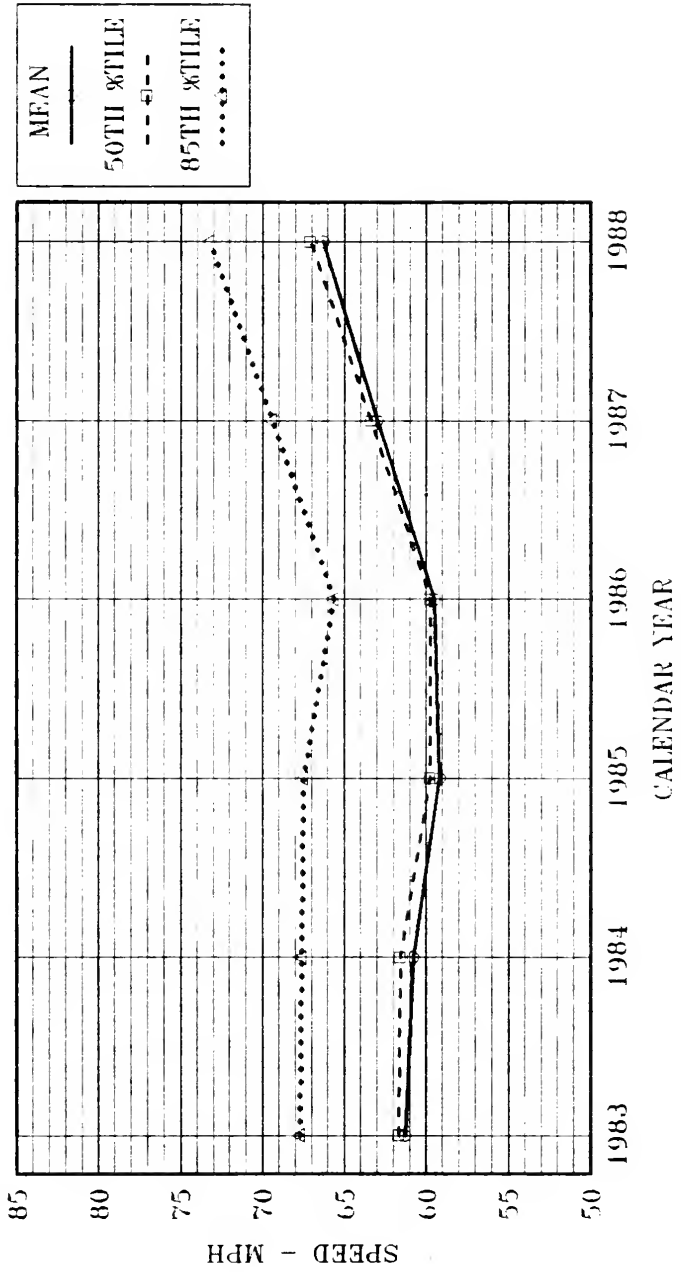
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-05

FIGURE A-5A

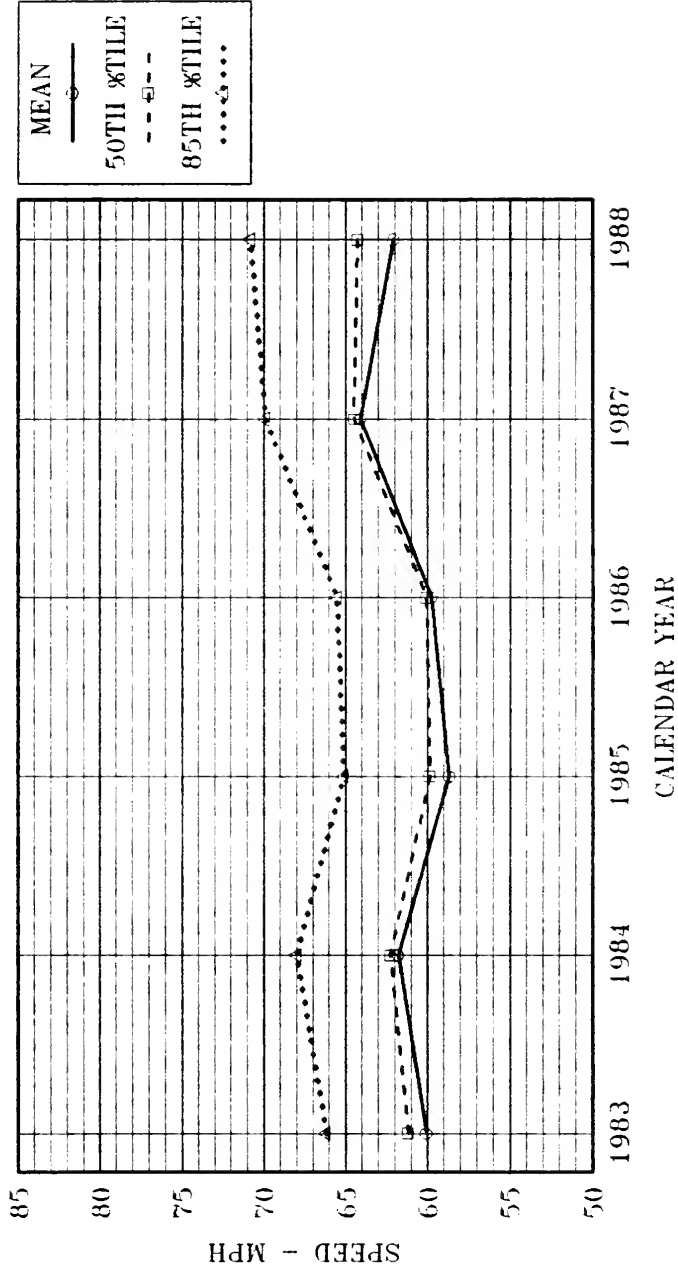
RURAL INTERSTATE SPEED TRENDS
FOR INDIANA



Location: RIC-06

FIGURE A-6A

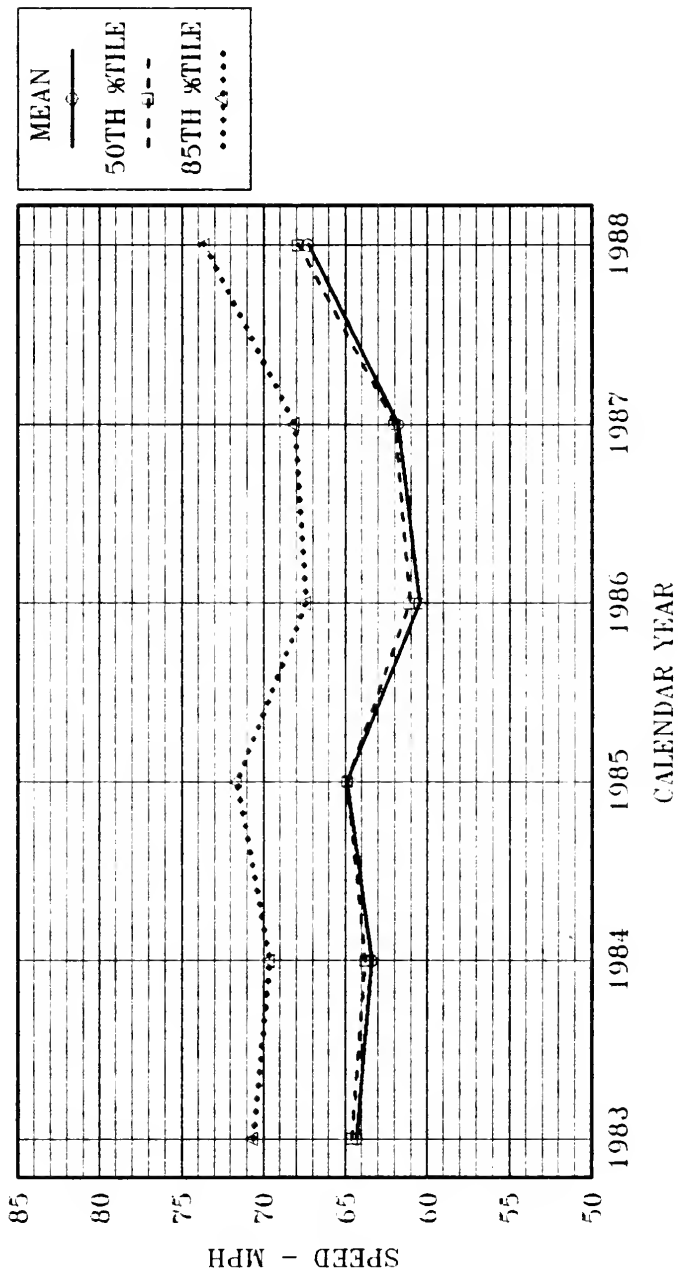
RURAL INTERSTATE SPEED TRENDS
FOR INDIANA



Location: RIS-07

FIGURE A--7A

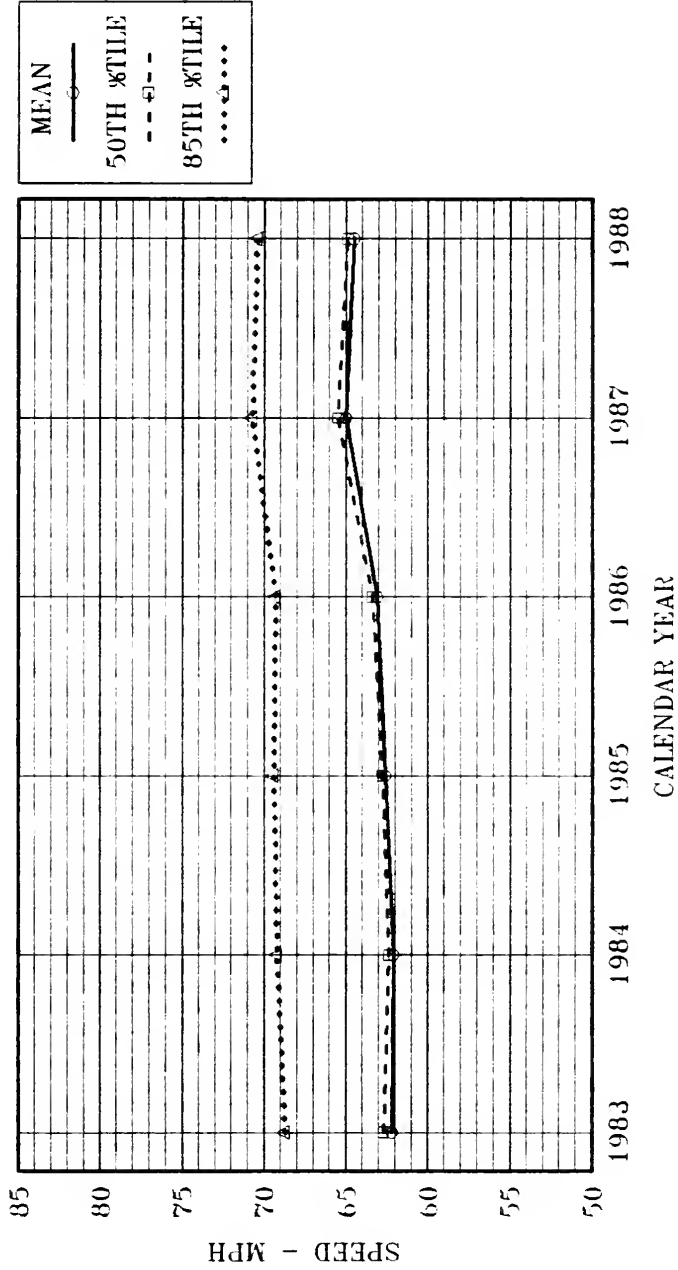
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-08

FIGURE A-8A

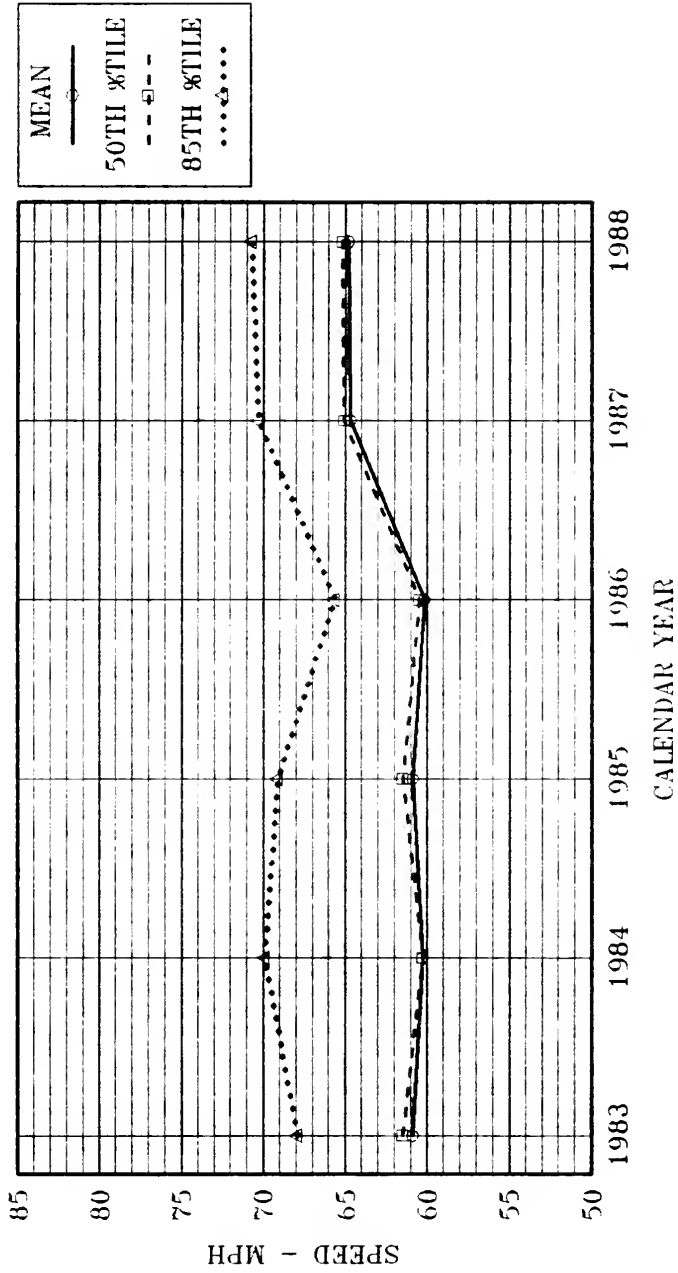
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-09

FIGURE A--9A

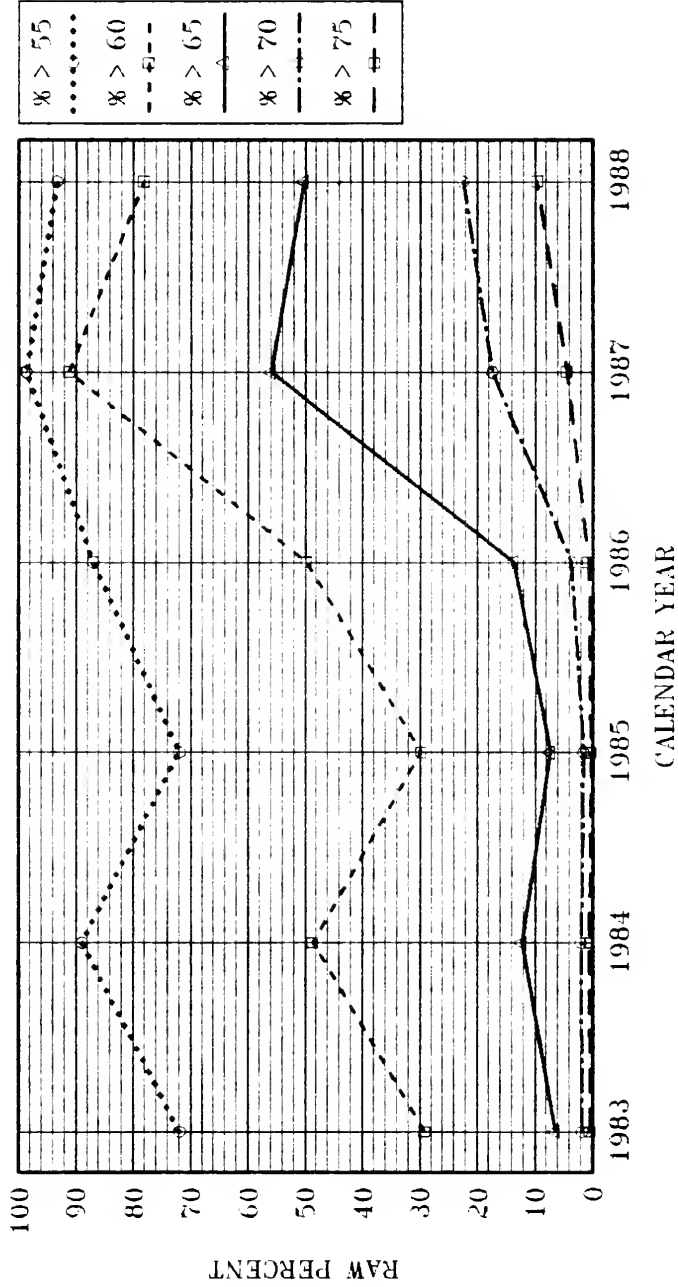
RURAL INTERSTATE SPEED TRENDS
FOR INDIANA



Location: RIS-10

FIGURE A--10A

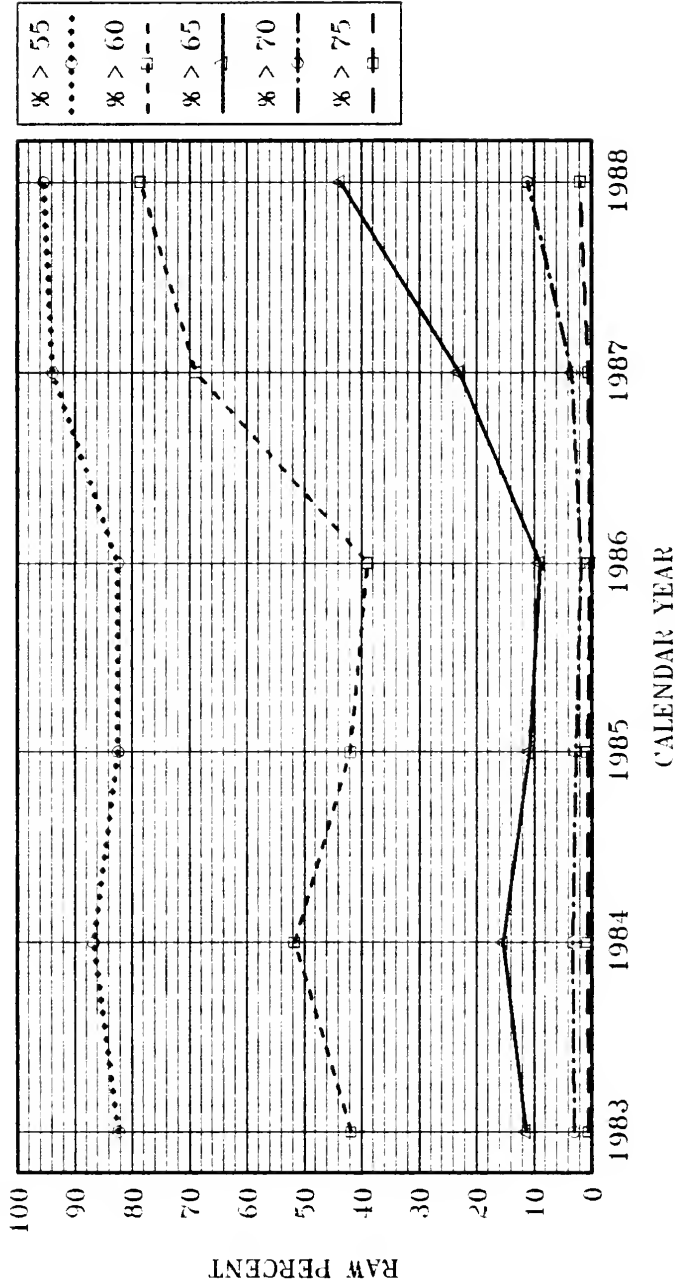
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-01

FIGURE A-1B

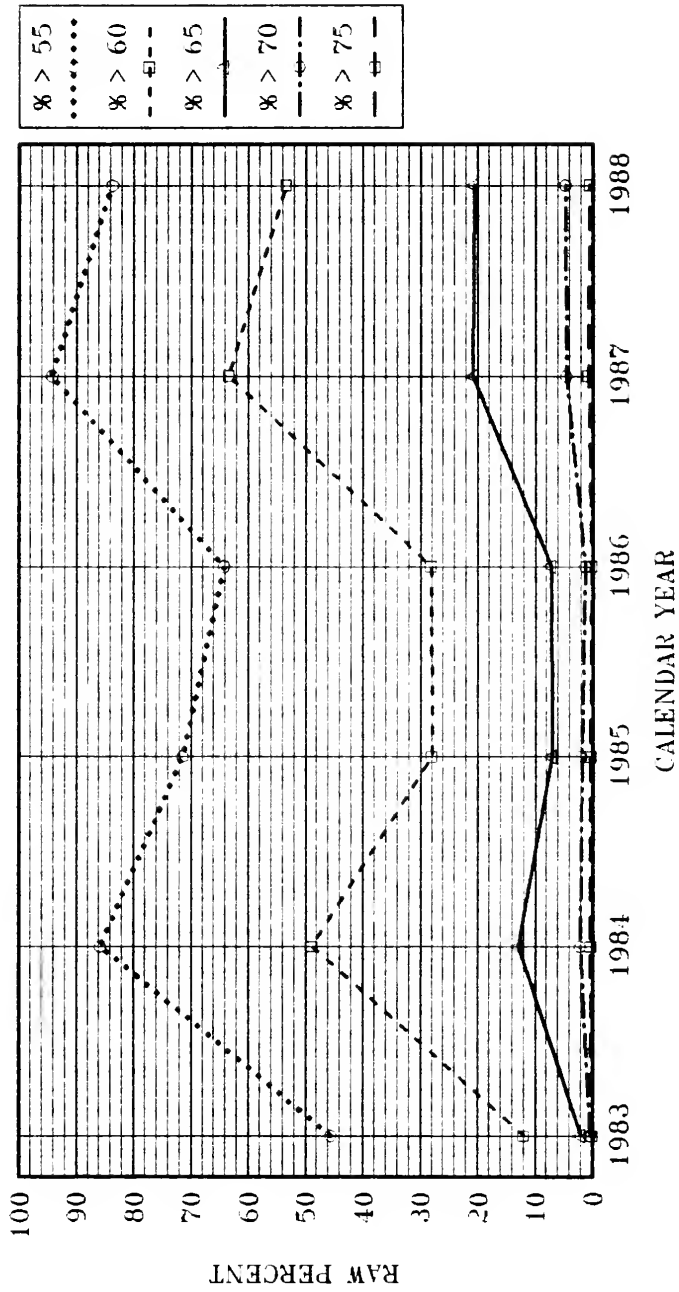
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-02

FIGURE A-2B

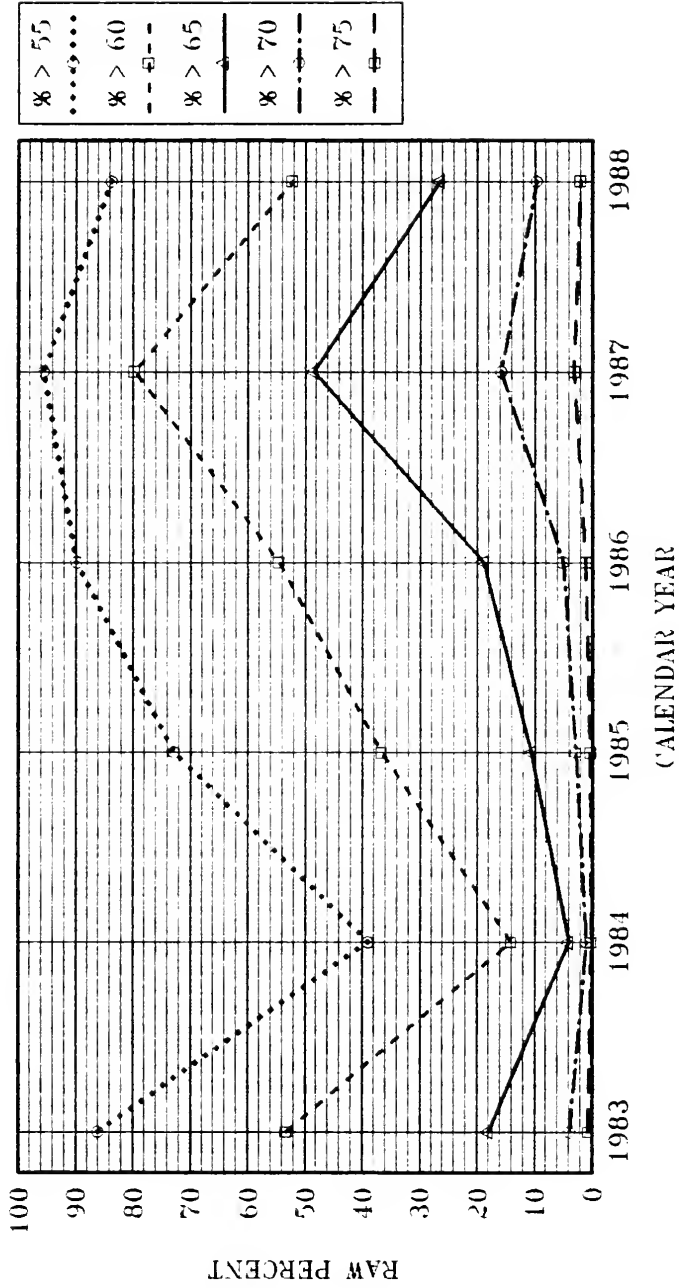
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-03

FIGURE A-3B

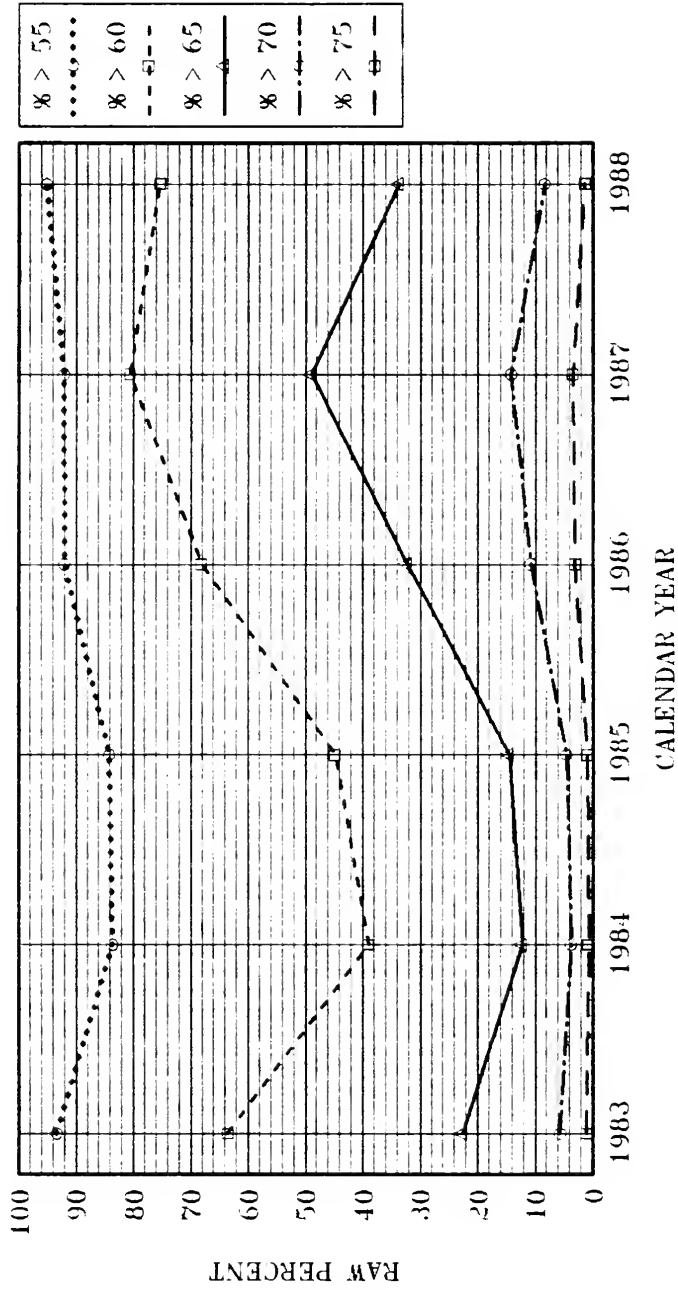
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-04

FIGURE A-4B

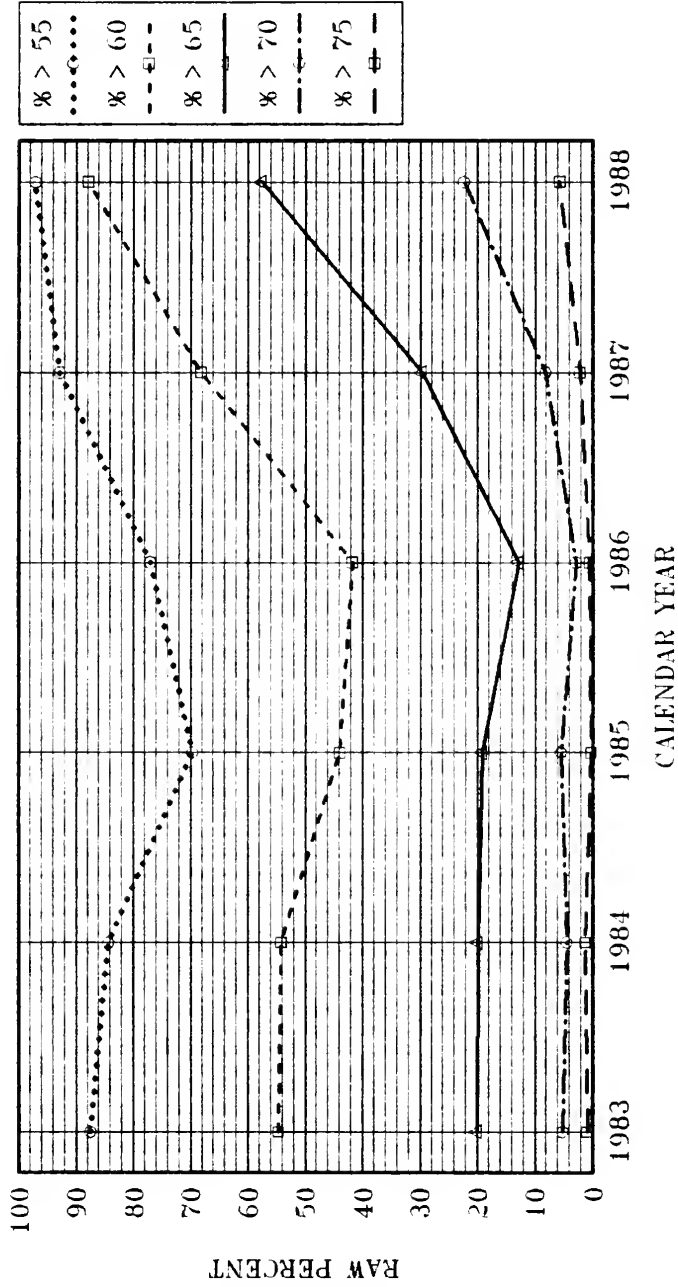
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-05

FIGURE A-5B

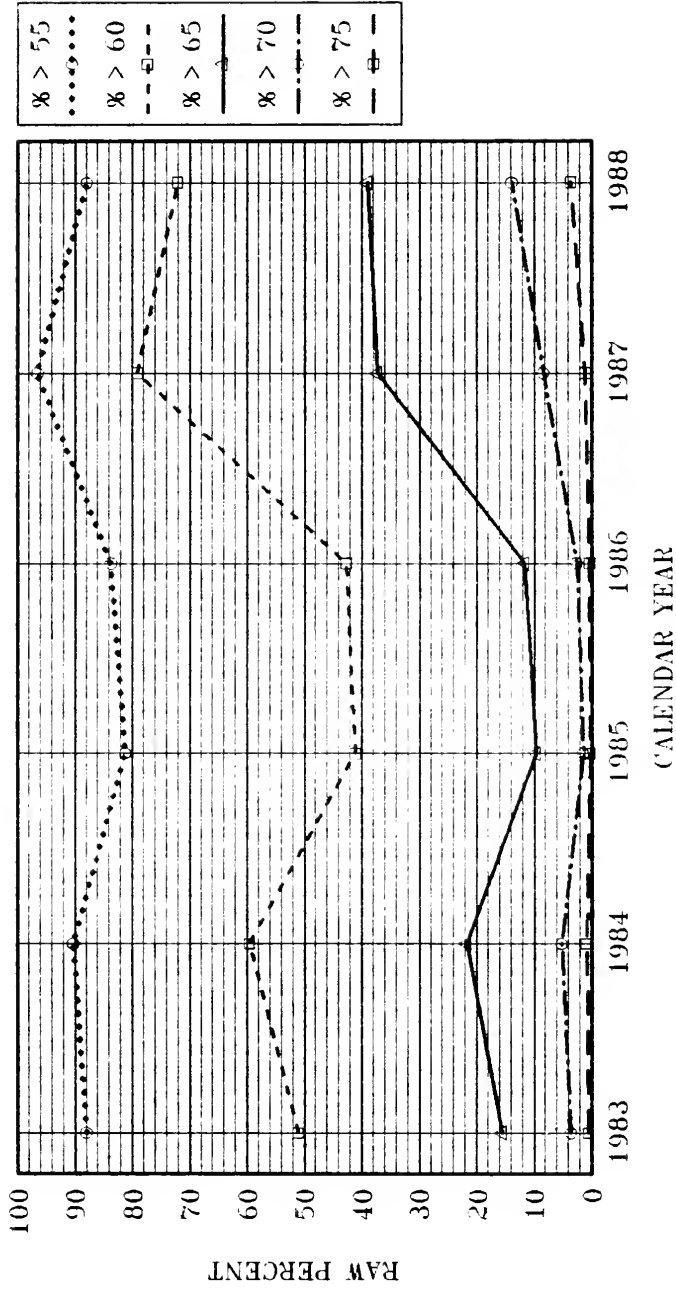
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-06

FIGURE A-6B

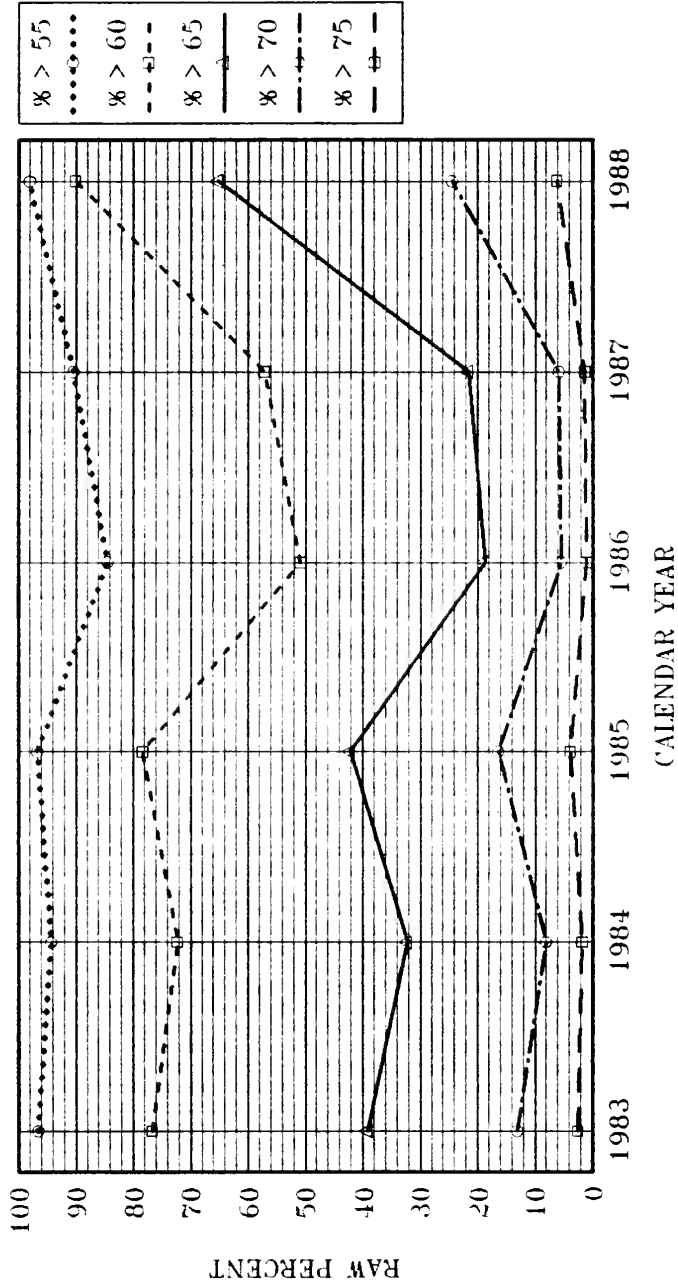
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RLS-07

FIGURE A-7B

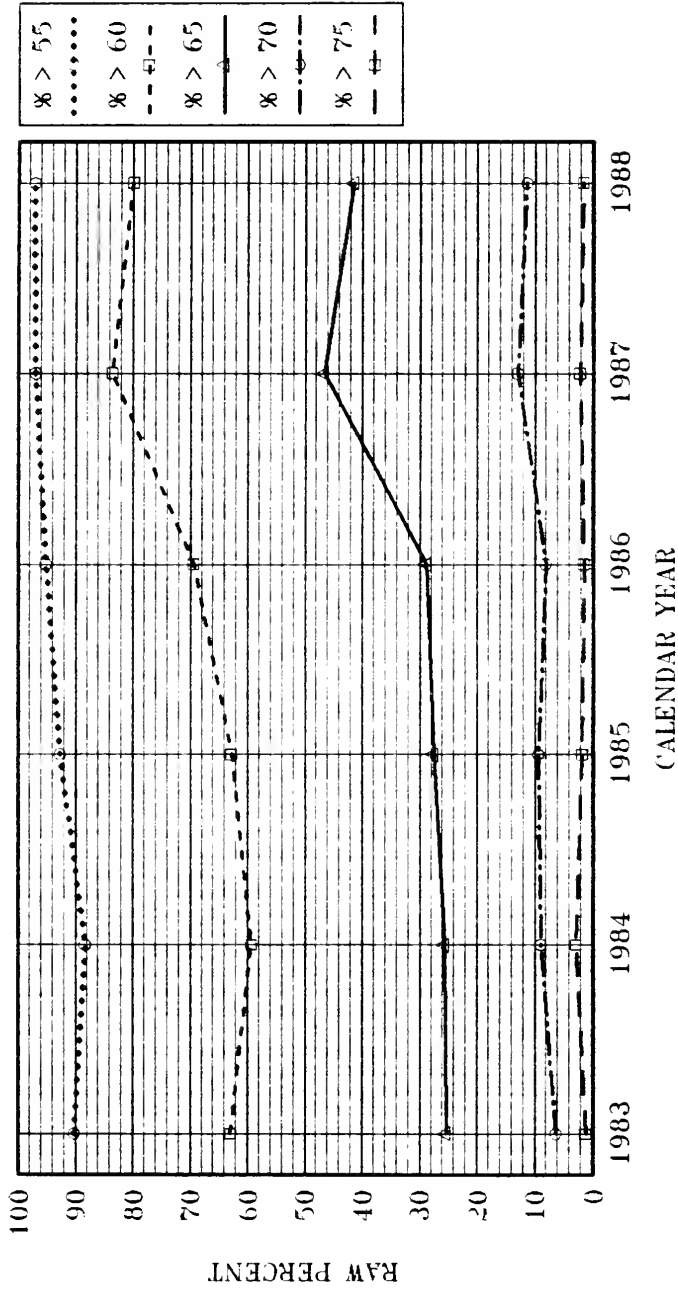
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-08

FIGURE A-8B

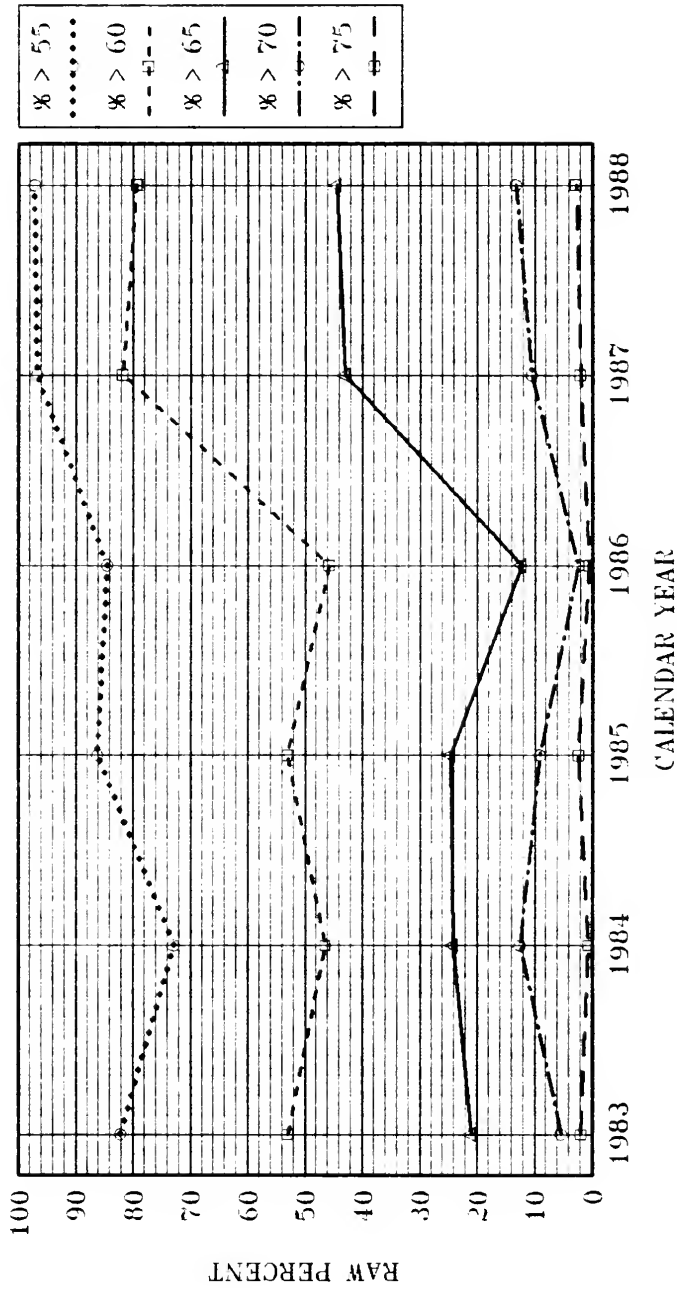
RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIC-09

FIGURE A--9B

RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: RIS-10

FIGURE A-10B

Appendix B

Rural Interstate Speed Data

by

Calendar Year (1983 thru 1988)

1983-1988 Speed Data Tables (B-1 thru B-6)

Mean Speed Figures (B-1 thru B-2)

TABLE B-1

SPEED DATA FOR 1983

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>60	>65	>65	>70	>70	>75	>75
RIS-01	WED	20 Jul 83	5742	57.6	58.6	64.1	5589	5254	4127	71.9	1677	29.2	375	6.5	106	1.8	28
RIS-02	MON	13 Jun 83	6305	58.8	60.0	65.4	6090	5937	5193	82.4	2642	41.9	721	11.4	190	3.0	39
RIS-03	WED	11 Jan 83	8780	53.8	55.3	60.6	8005	6797	4008	45.6	1055	12.0	176	2.0	43	0.5	9
RIC-04	FRI	24 Feb 84	3998	60.7	61.5	67.1	3912	3892	3442	86.1	2131	53.3	720	18.0	157	3.9	28
RIS-05	FRI	18 Nov 83	3530	62.3	62.7	68.2	3527	3512	3296	93.4	2245	63.6	798	22.6	200	5.7	38
RIC-06	TUE	4 Jan 83	2213	61.3	61.7	67.7	2207	2161	1937	87.5	1211	54.7	443	20.0	116	5.2	20
RIS-07	FRI	29 Oct 82	9059	60.1	61.2	66.2	8826	8708	7975	88.0	4630	51.1	1408	15.5	330	3.6	57
RIC-08	FRI	20 May 83	6613	64.3	64.6	70.6	6591	6569	6390	96.6	5071	76.7	2592	39.2	866	13.1	172
RIC-09	THU	31 Aug 83	9303	62.2	62.7	68.7	9265	9161	8388	90.2	5859	63.0	2367	25.4	585	6.3	113
RIS-10	MON	24 Jan 83	6074	60.8	61.5	67.9	6004	5826	4994	82.2	3219	53.0	1276	21.0	328	5.4	119

TABLE B-2

SPEED DATA FOR 1984

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>60	>65	>65	>70	>70	>75	>75
RIS-01	FRI	14 Sep 84	8979	60.5	60.8	65.6	8944	8832	7984	88.9	4376	48.7	1093	12.2	179	2.0	50
RIS-02	FRI	18 May 84	6825	60.7	61.2	66.2	6784	6681	5916	86.7	3529	51.7	1049	15.4	230	3.4	53
RIS-03	WED	15 Feb 84	7808	60.4	60.9	65.7	7791	7691	6696	85.8	3821	48.9	1006	12.9	169	2.2	30
RIC-04	MON	10 Dec 84	3471	53.0	54.0	60.8	3041	2923	1355	39.0	489	14.1	141	4.1	35	1.0	7
RIS-05	SAT	28 Sep 85	3867	59.7	59.8	65.5	3839	3774	3234	83.6	1509	39.0	475	12.3	147	3.8	32
RIC-06	TUE	27 Mar 84	2673	60.8	61.6	67.6	2644	2574	2254	84.3	1448	54.2	531	19.9	120	4.5	34
RIS-07	THU	27 Oct 83	9252	61.7	62.3	68.0	9213	9128	8354	90.3	5515	59.6	2004	21.7	478	5.2	86
RIC-08	TUE	10 Apr 84	5219	63.4	63.8	69.6	5201	5171	4919	94.3	3773	72.3	1685	32.3	421	8.1	95
RIC-09	SUN	8 Jul 84	9314	62.1	62.4	69.2	9243	9126	8228	88.3	5533	59.4	2387	25.6	830	8.9	273
RIS-10	WED	27 Jun 84	10112	60.2	60.3	69.9	9904	9264	7374	72.9	4702	46.5	2452	24.2	1263	12.5	69

TABLE B-3

SPEED DATA FOR 1985

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>75	>75
RIS-01	WED	4 Sep 85	5133	57.7	58.6	64.3	5000	4714	3692	71.9	1529	29.8	379	7.4	84
RIS-02	THU	15 Nov 84	5467	59.3	60.0	65.3	5365	5195	4504	82.4	2294	42.0	590	10.8	151
RIS-03	MON	21 Nov 85	7921	57.7	58.5	64.1	7739	7341	5658	71.4	2216	28.0	562	7.1	147
RIC-04	MON	11 Nov 85	6958	56.6	59.2	65.2	6406	6039	5068	72.8	2557	36.7	739	10.6	204
RIC-05	MON	28 Oct 85	4407	60.2	60.3	65.9	4367	4247	3712	84.2	1973	44.8	640	14.5	201
RIC-06	SAT	19 Feb 85	2409	59.2	59.8	67.5	2349	2141	1678	69.7	1060	44.0	459	19.1	133
RIS-07	WED	5 Jun 85	10758	58.7	59.9	65.1	10412	10135	8738	81.2	4420	41.1	1038	9.6	165
RIC-08	TUE	21 May 85	5958	64.9	64.9	71.6	5951	5936	5762	96.7	4671	78.4	2515	42.2	980
RIC-09	SAT	7 Sep 85	7407	62.6	62.8	69.4	7372	7291	6864	92.7	4649	62.8	2037	27.5	694
RIS-10	FRI	11 Oct 85	16376	60.9	61.5	69.1	15896	15613	14108	86.2	8698	53.1	4028	24.6	1487

TABLE B-4

SPEED DATA FOR 1986

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>75	>75
RIS-01	SAT	6 Sep 86	5692	60.6	61.0	65.8	5668	5555	4949	86.9	2832	49.8	782	13.7	211
RIS-02	THU	10 Jun 86	7571	58.8	59.7	65.0	7350	7168	6236	82.4	2952	39.0	678	9.0	134
RIS-03	WED	26 Feb 86	8250	57.1	58.0	64.1	7953	7266	5293	64.2	2317	28.1	591	7.2	111
RIC-04	TUE	25 Nov 86	7628	61.2	61.6	67.4	7567	7506	6847	89.8	4165	54.6	1439	18.9	388
RIS-05	TUE	11 Nov 86	3368	62.6	63.5	70.0	3295	3268	3099	92.0	2293	68.1	1084	32.2	363
RIC-06	TUE	4 Feb 86	2608	59.5	59.8	65.6	2589	2525	2008	77.0	1090	41.8	333	12.8	75
RIS-07	SAT	27 Sep 86	10941	59.8	60.1	65.5	10868	10622	9153	83.7	4676	42.7	1269	11.6	280
RIC-08	FRI	13 Jun 86	9433	60.5	61.1	67.4	9208	8897	7968	84.5	4805	50.9	1768	18.7	516
RIC-09	FRI	5 Sep 86	9181	63.1	63.4	69.3	9155	9111	8742	95.2	6375	69.4	2841	28.8	740
RIS-10	SAT	22 Nov 86	12532	60.2	60.5	65.6	12497	12280	10590	84.5	5745	45.8	1533	12.2	302

TABLE B-5

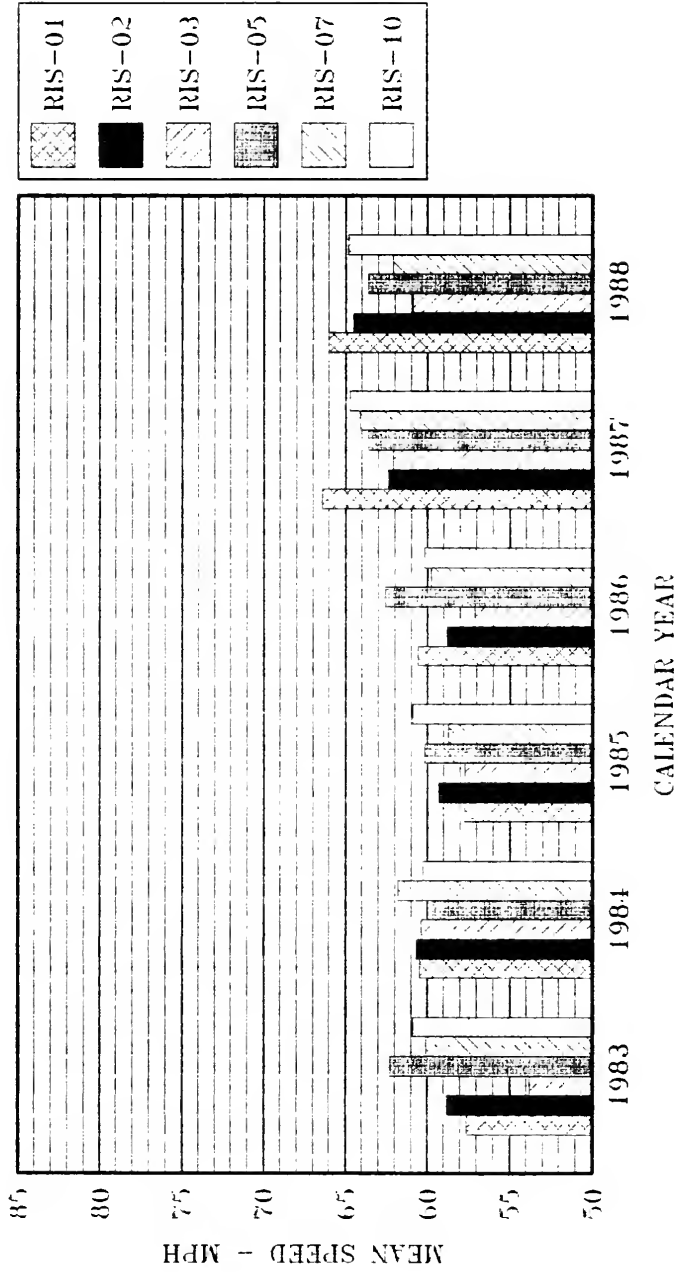
SPEED DATA FOR 1987

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
RIS-01	TUE	22 Sep 87	7178	66.4	66.8	71.9	7173	7160	7079	98.6	6543	91.2	4019	56.0	1249	17.4	322	4.5
RIS-02	WED	3 Jun 87	7829	62.4	63.1	68.0	7806	7734	7340	93.8	5396	68.9	1800	23.0	272	3.5	48	0.6
RIS-03	THU	22 Jan 87	9303	62.1	62.6	67.8	9282	9242	8764	94.2	5901	63.4	1932	20.8	431	4.6	75	0.8
RIC-04	SUN	22 Nov 87	6490	65.0	65.8	71.3	6452	6419	6204	95.6	5177	79.8	3150	48.5	1025	15.8	202	3.1
RIS-05	WED	11 Nov 87	3975	63.6	65.8	70.9	3796	3759	3659	92.1	3203	80.6	1949	49.0	564	14.2	141	3.5
RIC-06	WED	14 Jan 87	2983	63.0	63.4	69.4	2978	2952	2769	92.8	2033	68.2	887	29.7	246	8.2	66	2.2
RIS-07	MON	28 Sep 87	11398	64.1	64.5	69.9	11378	11346	10997	96.5	9018	79.1	4247	37.3	953	8.4	126	1.1
RIC-08	SAT	16 May 87	6487	61.8	62.0	68.1	6479	6442	5864	90.4	3711	57.2	1398	21.6	385	5.9	94	1.4
RIS-09	WED	16 Sep 87	9688	65.0	65.5	70.7	9660	9624	9402	97.0	8102	83.6	4515	46.6	1258	13.0	213	2.2
RIS-10	SAT	21 Nov 87	11978	64.7	65.1	70.3	11970	11925	11582	96.7	9794	81.8	5153	43.0	1257	10.5	246	2.1

SPEED DATA FOR 1988

LOCATION	DAY	DATE	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
RIS-01	THU	22 Sep 88	6304	66.0	66.0	73.9	6280	6211	5881	93.3	4930	78.2	3168	50.3	1421	22.5	608	9.6
RIS-02	FRI	3 Jun 88	10076	64.5	65.1	70.4	10063	10006	9616	95.4	7918	78.6	4405	43.7	1118	11.1	201	2.0
RIS-03	FRI	22 Jan 88	11238	60.9	61.5	67.8	11164	10889	9409	83.7	6001	53.4	2320	20.6	540	4.8	69	0.6
RIC-04	WED	7 Dec 88	6370	61.4	61.4	69.4	6306	6199	5336	83.8	3330	52.3	1691	26.5	620	9.7	136	2.1
RIS-05	TUE	2 Aug 88	4473	63.6	64.0	69.7	4459	4437	4253	95.1	3371	75.4	1507	33.7	377	8.4	62	1.4
RIC-06	FRI	15 Jan 88	3493	66.3	67.1	73.2	3460	3445	3390	97.1	3069	87.9	2011	57.6	782	22.4	198	5.7
RIS-07	WED	28 Sep 88	12079	62.1	64.3	70.8	11371	11170	10618	87.9	8712	72.1	4712	39.0	1683	13.9	436	3.6
RIC-08	SUN	15 May 88	9257	67.3	67.9	73.6	9249	9230	9082	98.1	8343	90.1	6033	65.2	2269	24.5	574	6.2
RIC-09	THU	15 Sep 88	10715	64.5	64.9	70.4	10680	10645	10403	97.1	8576	80.0	4440	41.4	1222	11.4	171	1.6
RIS-10	SAT	16 Jul 88	14003	64.9	65.2	70.7	13997	13970	13616	97.2	11114	79.4	6227	44.5	1860	13.3	393	2.8
RIC-11	THU	17 Mar 88	12377	63.0	63.3	69.0	12366	12338	11891	96.1	8556	69.1	3456	27.9	775	6.3	143	1.2
RIC-12	THU	3 Jun 88	12175	65.0	65.6	70.7	12151	12073	11697	96.1	9998	82.1	5733	47.1	1594	13.1	282	2.3

RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Location: All RIS

FIGURE B-1

RURAL INTERSTATE SPEED TRENDS FOR INDIANA

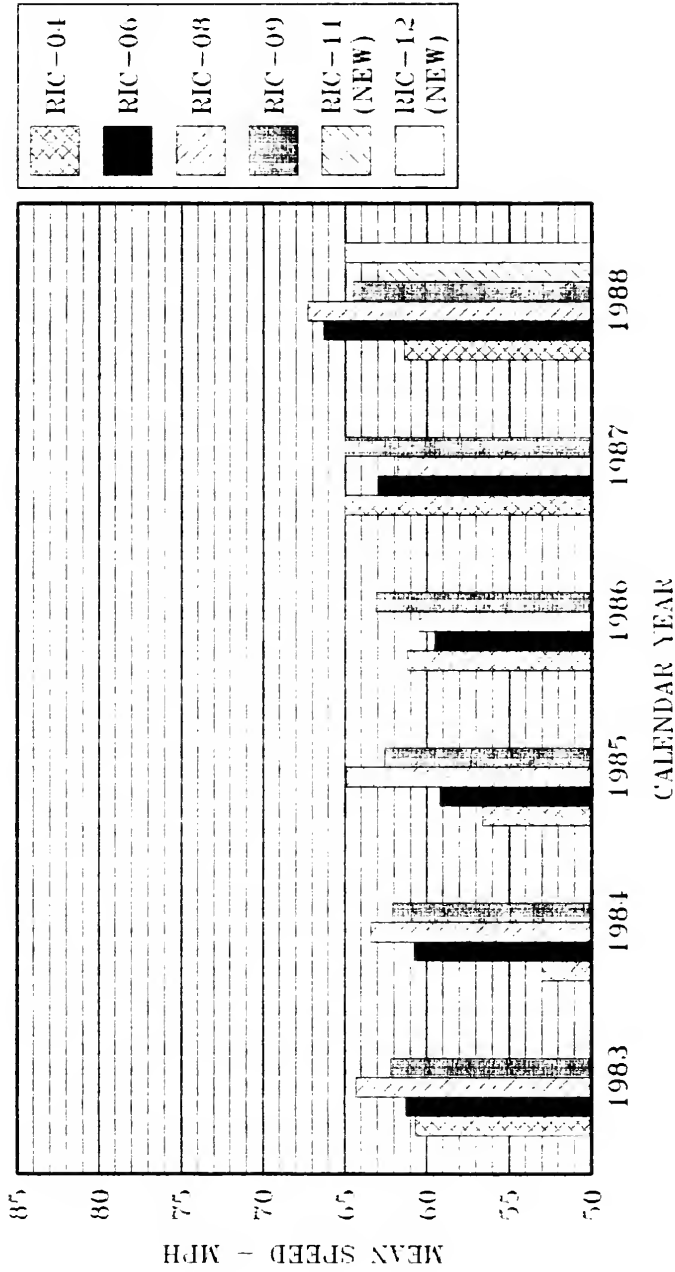


FIGURE B-2

Location: All RIC

Appendix C

Rural Interstate Speed Data

Speed vs. Vehicle Length

at

RIS-03 & RIC-04

Speed by Length Data Tables (C-1 thru C-2)

Speed by Length Figures (C-1 thru C-2)

TABLE C-1

SPEED BY LENGTH DATA AT RIS-03

DAILY INDIVIDUAL VEHICLE STATS

27 Sep 88	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
CARS (1-20')	6906	66.5	66.7	74.1	6861	6828	6626	95.9	5846	84.7	3763	54.5	1582	22.9	704	10.2
STTK (21-45')	665	60.4	60.4	67.2	657	639	494	74.3	311	46.8	119	17.9	41	6.2	29	4.4
LGTK (46-99')	4460	61.9	61.4	68.9	4456	4383	3733	83.7	2333	52.3	1014	22.7	422	9.5	235	5.3
ALL TRUCKS	5125	61.7	61.3	68.7	5113	5022	4227	82.5	2644	51.6	1133	22.1	463	9.0	264	5.2
ALL COMBINED	12031	64.4	64.4	72.1	11974	11850	10853	90.2	8490	70.6	4896	40.7	2045	17.0	968	8.0
28 Sep 88	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
CARS (1-20')	6901	67.3	67.7	75.1	6851	6818	6625	96.0	5968	86.5	4184	60.6	1989	28.8	817	11.8
STTK (21-45')	720	60.4	60.3	68.9	708	662	514	71.4	334	46.4	169	23.5	63	8.8	31	4.3
LGTK (46-99')	4660	61.5	61.4	69.4	4640	4457	3642	78.2	2436	52.3	1195	25.6	461	9.9	207	4.4
ALL TRUCKS	5380	61.3	61.3	69.3	5348	5119	4156	77.2	2770	51.5	1364	25.4	524	9.7	238	4.4
ALL COMBINED	12281	64.7	65.1	73.3	12199	11937	10781	87.8	8738	71.2	5548	45.2	2513	20.5	1055	8.6
29 Sep 88	TOTAL	MEAN	50TH	85TH	>45	>50	>55	%>55	>60	%>60	>65	%>65	>70	%>70	>75	%>75
CARS (1-20')	7710	65.7	65.7	73.9	7653	7585	7178	93.1	6012	78.0	3707	48.1	1668	21.6	795	10.3
STTK (21-45')	752	57.1	56.8	65.1	721	620	406	54.0	225	29.9	87	11.6	34	4.5	23	3.1
LGTK (46-99')	4634	60.0	59.2	67.6	4609	4381	3292	71.0	1764	38.1	827	17.8	409	8.8	238	5.1
ALL TRUCKS	5386	59.6	58.9	67.1	5330	5001	3698	68.7	1989	36.9	914	17.0	443	8.2	261	4.8
ALL COMBINED	13096	63.2	63.1	71.7	12983	12856	10876	83.0	8001	61.1	4621	35.3	2111	16.1	1056	8.1

TABLE C-2

SPEED BY LENGTH AT RIC-06

DAILY INDIVIDUAL VEHICLE STATS

16 Dec 88	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>70	>75	>75
CARS (1-20')	2640	69.0	68.7	80.5	2626	2601	2493	94.4	2167	82.1	1629	61.7	1051	39.8
STTK (21-45')	293	67.1	65.7	80.2	292	285	251	85.7	206	70.3	143	48.8	97	33.1
LGTK (46-99')	998	67.1	66.0	79.1	998	980	891	89.3	710	71.1	498	49.9	314	31.5
ALL TRUCKS	1291	67.1	65.9	79.4	1290	1265	1142	88.5	916	71.0	641	49.7	411	31.8
ALL COMBINED	3931	68.4	67.9	80.2	3916	3866	3635	92.5	3083	78.4	2270	57.7	1462	37.2
													943	24.0

17 Dec 88	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>70	>75	>75
CARS (1-20')	2347	67.1	67.5	74.4	2335	2321	2249	95.8	2025	86.3	1401	59.7	630	26.8
STTK (21-45')	235	65.4	65.4	73.5	235	231	216	91.9	177	75.3	110	46.8	50	21.3
LGTK (46-99')	527	64.9	64.8	72.3	526	525	483	91.7	390	74.0	225	42.7	94	17.8
ALL TRUCKS	762	65.1	65.0	72.7	761	756	699	91.7	567	74.4	335	44.0	144	18.9
ALL COMBINED	3109	66.6	66.9	74.1	3096	3077	2948	94.8	2592	83.4	1736	55.8	774	24.9
													285	9.2

18 Dec 88	TOTAL	MEAN	50TH	85TH	>45	>50	>55	>60	>65	>65	>70	>70	>75	>75
CARS (1-20')	2376	65.0	66.3	73.8	2356	2315	2060	86.7	1655	69.7	1226	51.6	576	24.2
STTK (21-45')	233	64.1	65.1	73.2	231	222	190	81.5	160	68.7	107	45.9	47	20.2
LGTK (46-99')	469	61.7	62.4	70.5	463	424	350	74.6	267	56.9	153	32.6	62	13.2
ALL TRUCKS	702	62.5	63.3	71.3	694	646	540	76.9	427	60.8	260	37.0	109	15.5
ALL COMBINED	3078	64.4	65.6	73.4	3050	2961	2600	84.5	2082	67.6	1486	48.3	685	22.3
													227	7.4

RURAL INTERSTATE SPEED TRENDS FOR INDIANA

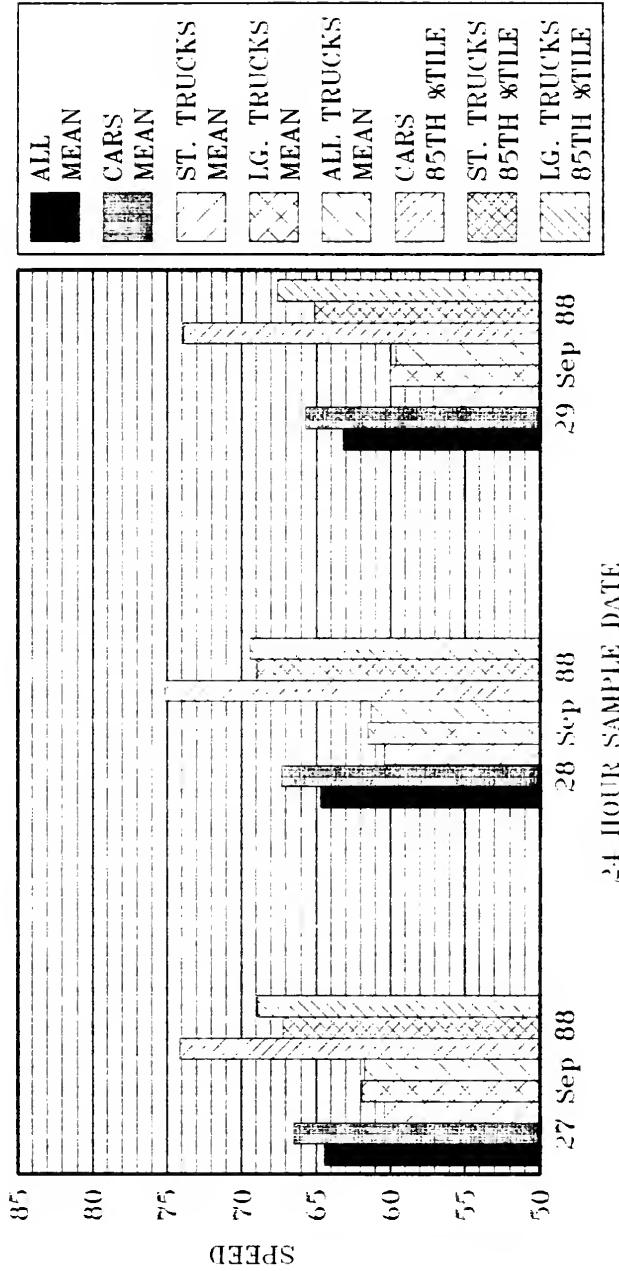
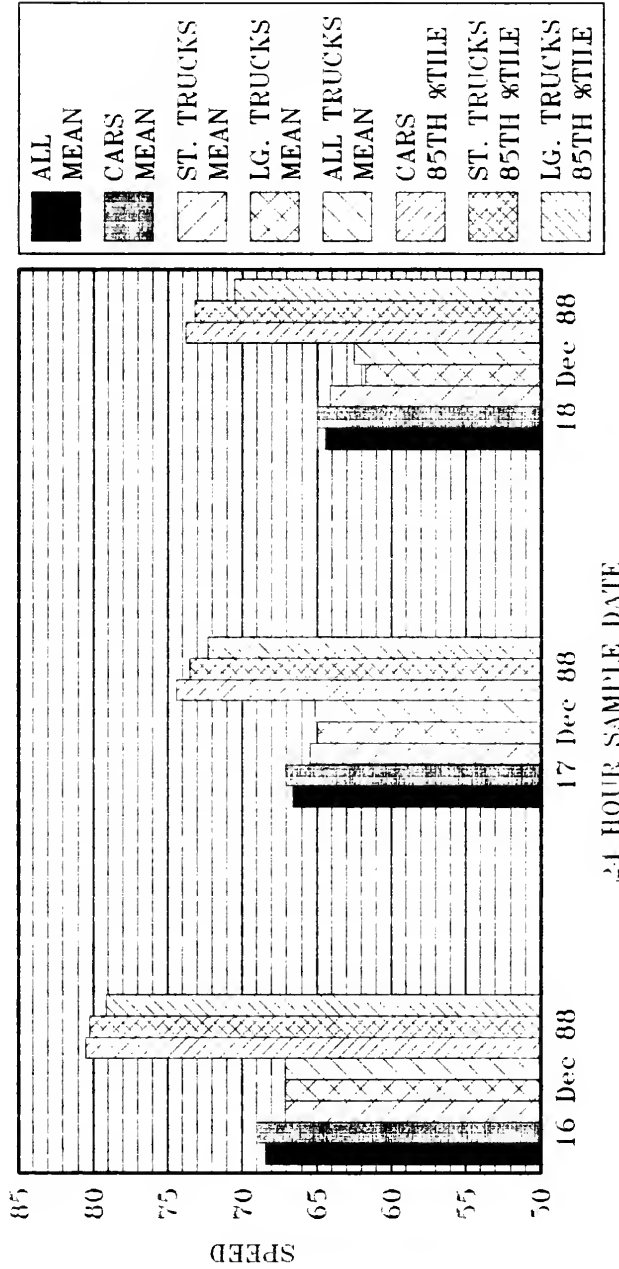


FIGURE C-1

RURAL INTERSTATE SPEED TRENDS FOR INDIANA



Speed vs Length at RIC-06
Short Trucks = 21-45 Feet
Long Trucks = 46-99 Feet

FIGURE C-2

Appendix D

Rural Interstate Speed Data

Calculations

1988 RURAL INTERSTATE STATISTICS VMT = 0.2646				
1988 Stations	(Xhi) Number Vehicles	(Yhi) Number > 65 mph	(ph * Xhi)	(Yhi - ph * Xhi) **2
RIS-01	6304	3168	2559.65	370084.76
RIS-02	10076	4405	4091.22	98455.54
RIS-03	11238	2320	4563.04	5031220.17
RIC-04	6370	1691	2586.45	801835.16
RIS-05	4473	1507	1816.19	95316.15
RIC-06	3493	2011	1418.29	351310.50
RIS-07	12079	4712	4904.51	37061.97
RIC-08	9257	6033	3758.68	5172532.13
RIC-09	10715	4440	4350.68	7977.87
RIS-10	14003	6227	5685.73	292974.22
RIC-11	12377	3456	5025.51	2463373.33
RIC-12	12175	5733	4943.49	623319.17
TOTALS	112560	45703		15345460.95
(ph) = 0.1060364972 (Ph) = 40.6 (Xbar) = 9380.00 (Sdh)**2 = 1395041.90 Standard Deviation S(ph) % = 3.63 (Wh**2)*(Sph**2) = 9.24760E-01 Statewide Standard error = 0.96 Sampling Accuracy = 1.71 Final = 30.5				

1987 DVMT, MILEAGE AND WEIGHTING STATISTICS				
	FC	@ 55 & 65 MILES	@ 55 & 65 DVMT	VMT WEIGHTING FACTOR
	UA	238.0	10576545	0.1796
	UF	103.8	1926648	0.0327
	UA	342.8	3337448	0.0567
	(55MPH) RI	13.0	362598	0.0062
	(65MPH) RI	853.2	15215697	0.2584
	RA	3906.6	15295557	0.2598
	RC	4781.4	12170624	0.2067
= > 55MPH TOTAL		10238.8	58885117	1.0000
STATEWIDE TOTAL		91527.8	120071692	
TOTAL RI (55MPH/65MPH) VMT WEIGHTING FACTOR				0.2646
PERCENT OF RURAL INTERSTATE DVMT ON FACILITIES WITH 55MPH & 65MPH SPEED LIMITS				
				8.46

COVER DESIGN BY ALDO GIORGINI